PB86-172814

Guidance for the Reregistration of Pesticide Products Containing Pendimethalin as the Active Ingredient

(U.S.) Environmental Protection Agency
Washington, DC

Mar 85

U.S. Department of Commerce
National Technical Information Service

United States
Environmental Protection
Agency

Office of
Pesticides and Toxic Substances
Washington DC 20460

PB86-172814

EPA

Pesticides

March 1985

Guidance for the Reregistration of Pesticide Products Containing Pendamethalin

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

---

3. End-Use Product Statements

The human hazard statements must appear on all EP labels as prescribed in 40 CFR 162.10. In addition, the following environmental hazard statement must appear on all EPs:

a. Non Aquatic Uses (Granular products)

"This pesticide is toxic to fish. Do not apply directly to water. Runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water by cleaning of equipment or disposal of wastes. In case of spills, either collect for use or dispose of properly".

b. Non Aquatic Uses (Nongranular products)

"This pesticide is toxic to fish. Do not apply directly to water. Drift and runoff from treated areas may be hazardous to fish in neighboring areas. Do not contaminate water by cleaning of equipment or disposal of wastes".

c. Aquatic Uses (Rice)

"This pesticide is toxic to fish and aquatic organisms. Fish may be killed at application rates recommended on the label. Do not contaminate water by cleaning of equipment or disposal of wastes".

"Do not apply to rice fields if fields are used for catfish or crayfish farming".

Restrictions on Rotational Crops

"Pending the submission of rotational crop data, do not apply pendimethalin on rice fields in which crayfish or catfish farming are included in the cultural practices, and do not plant crops in pendimethalin-treated fields unless pendimethalin is registered for use on those crops".

Restrictions on Irrigated Crops

"Pending the submission of irrigated crop data, do not use water containing pendimethalin residues from rice cultivation to irrigate food or feed crops which are not registered for use with pendimethalin".

50272-101

REPORT DOCUMENTATION PAGE

1. REPORT NO.

2.

3. Recipient's Accession No. PB86 172814/AS

4. Title and Subtitle
Guidance for the Reregistration of Pesticide Products Containing PENDIMETHALIN as the Active Ingredient

5. Report Date
Issued March 1985

6.

7. Author(s)
EPA, Office of Pesticide Programs, Registration Div.

8. Performing Organization Rept. No.
540/RS-86-110

9. Performing Organization Name and Address
US Environmental Protection Agency
Office of Pesticide Programs
Registration Division TS-767C
401 M Street, SW
Washington, D. C. 20460

10. Project/Task/Work Unit No.

11. Contract(C) or Grant(G) No.
(C)
(G)

12. Sponsoring Organization Name and Address
Same as #9

13. Type of Report & Period Covered

14.

15. Supplementary Notes

16. Abstract (Limit: 200 words)

This document contains information regarding the reregistration of pesticide products containing the subject active ingredient. The document includes how to register under a registration standard, regulatory position and rationale, and summaries of data requirements and data gaps. Also included is a bibliography containing citations of all studies reviewed by EPA in arriving at the positions and conclusions contained in the standard.

17. Document Analysis a. Descriptors

Pesticides, standards, regulations, manufacturing, chemistry, toxicology, residues, ecology, path of pollutants.

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement:
Publicly Available

19. Security Class (This Report)
unclassified

20. Security Class (This Page)
unclassified

125

22. Price

(See ANSI-Z39.18)

See Instructions on Reverse

OPTIONAL FORM 272 (4-77)
(Formerly NTIS-35)
Department of Commerce

GUIDANCE FOR THE REREGISTRATION OF MANUFACTURING-USE AND CERTAIN END-USE PESTICIDE PRODUCTS

CONTAINING

PENDIMETHALIN
(108501)

CASE NUMBER 187

CAS 40487-42-1

ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF PESTICIDE PROGRAMS

WASHINGTON, D. C.   20460

March 1985

TABLE OF CONTENTS

PAGE

Introduction 1

I. Regulatory Position and Rationale. 4

II. Requirement for Submission of Generic Data 34

III. Requirement for Submission of Product-Specific Data 64

IV. Submission of Revised Labeling 64

  A. Label Contents 65

  B. Collateral Information 70

V. Instructions for Submission. 71

APPENDICES

II-1 Guide to Bibliography . . . .

II-2 Bibliography. . . . .

II-3 FIFRA §3(c)(2)(B) Summary Sheet - EPA Form 8580-1 . .

II-4 Certification of Attempt to Enter Into an Agreement with Other Registrants for Development of Data EPA Form 8580-2. . . . .

III-1 Product Specific Data Report (End-Use Products) . .

IV-1 40 CFR 162.10 Labeling Requirements . . . .

IV-2 Table of Labeling Requirements. . . . .

IV-3 Physical/Chemical Hazards Labeling Statement. . . .

IV-4 Storage and Disposal Instructions . . . .

INTRODUCTION

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA sec. 3(g)) directs EPA to reregister all pesticides as expeditiously as possible.

To carry out this task, EPA has established the Registration Standards program, which will review all pesticide products containing active ingredients first registered before January 1, 1977. Pesticides will be reviewed in use clusters which have been ranked to give earliest review to pesticides used on food and feed crops.

The Registration Standards program involves a thorough review of the scientific data base underlying pesticide registrations and an identification of essential but missing studies which may not have been required when the product was initially registered or studies that are now considered insufficient. EPA's reassessment results in the development of a regulatory position, contained in a Registration Standard, on each pesticide and its uses. The Agency may require the registrant to modify product labels to provide additional precautionary statements, restrict the use of the pesticide to certified applicators, provide reentry intervals, modify uses or formulation types, specify certain packaging limitations, or other requirements to assure that proper use of the pesticide will not result in adverse effects on the environment.

The scientific review, which is not contained in this Guidance Package but is available upon request, concentrates on the technical grade of the active ingredient and identifies missing generic data. However, during the review of these data we are also looking for potential hazards that may be associated with the end use (formulated) products that contain the active ingredient. If we have serious concerns, we will address end use products as part of the Registration Standards program and will propose regulatory actions to the extent necessary to protect the public.

EPA has the authority under FIFRA sec. 3(c)(2)(B) to require registrants to submit data that will answer our questions regarding the hazard that may result from the intended use of a pesticide. Although sec. 3(c)(2)(B) provides that all registrants are responsible for these data, the Agency generally imposes generic data requirements only on the registrants of the manufacturing use products (basic suppliers of the active ingredient). End use producers who do not qualify for the formulator's exemption* are also required to submit these data.

An end use producer who wishes to qualify for the formulator's exemption may change his source of supply to a registered source, provided the source does not share ownership in common with the registrant's firm. An end use registrant may do so by submitting a new Confidential Statement of Formula, EPA Form 8570-4, identifying the registered source of the active ingredient, to the appropriate Product Manager within 90 days of receipt of this Guidance Document. The chart on the following page shows what is generally required of those who do and do not qualify for the formulator's exemption in the Registration Standards program.

If you decide to request the Agency to cancel the registration of any of your products subject to the requirements of this Guidance Document, please notify the Product Manager named in the cover letter, within 90 days from the receipt of this document. If you decide to maintain your product registration(s), you must provide the information described in the following pages within the timeframes outlined. EPA will issue a notice of intent to cancel or suspend the registration of any currently registered product which does not comply with the requirements set forth in this Guidance Document.

You are reminded that FIFRA sec. 6(a)(2) requires you to submit factual information raising concerns of possible unreasonable adverse effects of a pesticide. You should notify the Agency of interim results of studies in progress if those results show possible adverse effects.

---

*The formulator's exemption applies to a registrant of an end use product if the source of his active ingredient(s): (1) is registered product and (2) is purchased from a source which does not have ownership in common with the registrant's firm.

PRODUCTS SUBJECT TO THE REGISTRATION STANDARDS PROGRAM	ACTION(S) REQUIRED TO MAINTAIN REGISTRATION
I. Products That Do Not Qualify For The Formulator's Exemption	
A. Single Active Ingredient Products*	These products must be reregistered. To obtain reregistration, labeling, packaging and data requirements must be satisfied in accordance with the Registration Standards Guidance Document.
B. Multiple Active Ingredient Products	These products will not be reregistered at this time. However, generic data required to continue the registration of the active ingredient under review, as described in the Registration Standards Guidance Document, will be required and some labeling precautions may also be required.
II. Products That Do Qualify For The Formulator's Exemption	Only when additional restrictions or labeling are needed to protect man or the environment will these products be subject to the Registration Standard requirements. Affected products will be dealt with in a variety of ways, including but not limited to the Label Improvement Program and special intent to cancel notices.

* End use products of registrants who also produce a manufacturing use product will not be required to be reregistered provided that registrant fulfills the requirements specified in the Guidance Document for manufacturing use product(s). Such end use products will be subject to the labeling changes required for products in "II" above. If there are no manufacturing use products registered by any company end use products will be required to be reregistered.

NOTE: If all registrants in "I" above fail to meet the requirements in I-A and B above, then the registrants in "II" lose their right to qualify for the formulator's exemption and become subject to the requirements in I-A and B.

I. REGULATORY POSITION AND RATIONALE

A. INTRODUCTION

This Registration Standard describes the regulatory position and rationale of the Environmental Protection Agency ("the Agency") for all registered manufacturing-use products (MPs) and end-use products (EPs) containing pendimethalin as the sole active ingredient. The Agency bases its position and rationale on an evaluation of all MPs and Section 3, 24(c) and intrastate uses registered for pendimethalin. EPs are reviewed only when there are no MPs registered or when the label has been changed significantly from the current accepted label. Mixtures are included only when there is a significant change in the label. After briefly describing the chemical and its uses, this chapter presents the Agency's regulatory position and rationale, the criteria for registration, acceptable ranges and limits, labeling requirements and the tolerance reassessments.

B. DESCRIPTION OF CHEMICAL

Pendimethalin is the accepted common name for the compound: N-(1-ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine as determined by the British Standards Institution, International Organization for Standardization, and the Weed Science Society of America. Pendimethalin is marketed under the trade name Prowl® and other names such as: Herbadox®, Stomp®, and AC 92553. The Chemical Abstracts Service (CAS) Registry number is 40487-42-1. The Office of Pesticide Program's EPA Chemical Code Number is 108501.

Pendimethalin is crystalline at room temperature and has a fruit-like odor. The empirical formula is $C_{13}H_{19}N_3O_4$, and its molecular weight is 281.30. The boiling point is 330°C. Pendimethalin is soluble in aromatic and chlorinated hydrocarbon solvents; and in water (at 20°C) to <0.50 ppm.

Pendimethalin is a dinitroaniline herbicide which selectively controls certain broadleafed weeds and grassy weed species. Pendimethalin is mainly applied as a preplant incorporation (except in corn, rice and sorghum), preemergence spray (corn, soybeans), early postemergence (rice), and late postemergence "culti-spray" (field corn and sorghum) applications.

Pendimethalin is taken up by the roots and shoots whereby it inhibits cell division and cell elongation. It is not readily translocated from one part of the plant to the other.

Pendimethalin was patented by the American Cyanamid Company (W.German Patent Nos. 2232-263 and 2241-408) in 1972 and was first registered for use in 1974. Technical pendimethalin is being produced in the United States by the American Cyanamid Company of Princeton, New Jersey.

Pendimethalin is available as a technical material at 90.0 % active ingredient for formulation of pendimethalin end-use products. Pendimethalin is available in granular, dispersible granular, and emulsifiable concentrate formulations.

C. REGULATORY POSITION AND RATIONALE

Based on the review and evaluation of all available data and other relevant information on pendimethalin the Agency has made the following determinations:

1. The available data do not indicate that any of the risk criteria listed in § 162.11(a) of Title 40 of the U.S.Code of Federal Regulations have been met or exceeded for the uses of pendimethalin at the present time.

   Rationale: Pendimethalin is not acutely toxic by the oral, dermal, inhalation and occular routes of exposure. The 2-year dog feeding study satisfied the requirement for a sub-chronic dog study. The 2-year dog feeding study indicated that dogs dosed with pendimethalin at 12.5 mg/kg, 50.0 mg/kg and 200.0 mg/kg had increases in alkaline phosphatase level and liver weight. The NOEL is 12.5 mg/kg/day. A teratology test in rats has shown that doses of pendimethalin up to 500.0 mg/kg, highest dose tested (HDT), failed to induce teratogenic, or fetotoxic effects. A teratology test in rabbits has shown that pendimethalin tested at 60.0 mg/kg (HDT), failed to induce teratogenic or fetotoxic effects. A reproduction study (3-generation rat) indicated that pendimethalin tested at 500 ppm to 5,000 ppm induced slightly reduced number of offspring, with no corresponding increase in deaths; decreased weight gain from weaning to maturity. The NOEL is 500 ppm.

   The following toxicological data gaps are: a dermal sensitization study in guinea pig, a 90-day rat feeding study, a chronic toxicity study in rat, an oncogenicity study in rat and in mouse, and the mutagenicity tests: gene mutation in bacteria, gene mutation in mammalian cells in culture, chromosomal aberration analysis in mammalian cells in culture, and DNA damage in mammalian cells in culture. There are also extensive residue chemistry and environmental fate data gaps.

2. The Agency will not allow any significant new uses* to be established for pendimethalin until the toxicological and residue chemistry data deficiencies identified in Table A have been satisfied.

   * "Significant new use" is defined in 44 FR 27934, May 11, 1979. In the case of a new food or feed use, the Agency will generally consider as significant an increase in the Theoretical Maximum Residue Contribution of greater than 1%.

Rationale: The Agency is unable to complete a tolerance reassessment of pendimethalin because of extensive residue and toxicology data gaps. The data requested in Table A are needed for EPA to evaluate the metabolism of pendimethalin and related metabolite(s) in crops and animals, storage stability, and chronic studies in the rat and mouse.

3. Products which are substantially similar to registered products may be considered for registration, subject to the terms and conditions specified in this document.

Rationale: The Agency does not think that new registrations of uses already on the market will increase the risks to the public from exposure to pendimethalin. However, the Agency will not register new products that would significantly increase exposure until the data gaps have been filled.

The Agency has authority under FIFRA Sections 3(c)(2)(B), 3(c)(5) and 3(c)(7) to require registrants and applicants for registration to provide data needed to support new or existing registrations. The issuance of this registration standard is the mechanism which the Agency has chosen to identify such data. These data will be reviewed and evaluated when they are received. At that time, the Agency will determine how the data will affect the registration(s) of pendimethalin.

4. The Agency will required MPs containing pendimethalin to bear Category III hazard statements and other warning statements as required in the precautionary labeling under 40 CFR 162.10.

Rationale: Acute toxicity studies for pendimethalin showed the following: Toxicity Category III for acute oral and dermal toxicity, and for dermal and primary eye irritation, and Toxicity Category IV for acute inhalation toxicity.

5. The Agency is requiring monitoring data for potential residues in aquatic sites next to rice fields. Once the Agency has evaluated these additional data, it will determine if EPA should impose more stringent measures to minimize exposure of aquatic organisms to pendimethalin. For the present, the Agency is requiring MPs and EPs containing pendimethalin to bear revised environmental hazard statements reflecting its toxicity to fish and aquatic invertebrates (Refer to Section F. REQUIRED LABELING) by October 30, 1985.

Rationale: Ecological effect studies indicate that pendimethalin is highly toxic to certain coldwater and warmwater fish; moderately to highly toxic to marine and estuarine organisms. However, a detailed ecological hazard assessment cannot be made until certain environmental chemistry data requirements are fulfilled and a monitoring study of aquatic sites next to rice fields is performed.

6. The Slackwater darter and certain freshwater mussels are endangered species at risk from the use of pendimethalin on cotton. The Agency is addressing appropriate means of labeling pesticides that may threaten the continued existence of endangered species. The labeling should be completed by the 1986 growing season. If it is not, this standard may be amended to impose interim labeling to protect endangered species.

   Rationale: The Agency believes that the conventional labeling approach may be inadequate to properly inform the users on how to protect the endangered species. The Agency anticipates that appropriate labeling will be developed in time for the 1986 growing season for cotton.

7. The Agency will regulate the current level of nitrosamine contaminant in technical pendimethalin. Technical pendimethalin may contain the N-nitroso contaminant, N-nitroso-pendimethalin at a limit not to exceed 60 ppm. Other contaminants must be analyzed.

   Rationale: A risk assessment was performed using surrogate data from diethyl-N-nitrosamine (DEN), the most hazardous known N-nitroso contaminant, and indicated if the nitroso contaminant in technical pendimethalin was not in excess of 135 ppm, the associated upper risk would not exceed 1×10^{-6} (1/1,000,000). As of August 1980, the manufacturing process was modified to reduce the amount of N-nitroso-pendimethalin formed during the production of technical pendimethalin. Data submitted to the Agency have shown that the level of this contaminant is less than 60 ppm in the technical product produced at the present time.

   Registrants are required to submit product analysis data and to certify what amount of the active ingredient and any impurities, including N-nitroso-pendimethalin, will be present in technical pendimethalin.

8. The Agency is imposing restrictions on rotational crops and irrigated crops. The extent of the restrictions will be reconsidered when additional data are received.

   Rationale: It is the policy of the Agency to impose restrictions on planting rotational crops and use of water from treated fields for irrigation of crops, pending the submission of data. This serves to protect the public from impermissable residues in food or feed in subsequently planted crops due to persistent residues.

9. The Agency has determined that pendimethalin should not cause a water contamination problem. Therefore, the Agency will not impose ground water data requirements on pendimethalin.

10. The Agency is not requiring a re-entry interval for currently registered uses of pendimethalin at this time.

Rationale: Pendimethalin has low acute toxicity (Category III) and no known chronic effects at the present time.

11. Registrants of end-use products must submit revised labeling which incorporates the label precautions found in Section F.

Rationale: The Agency believes that label statements prescribed in this guidance document should minimize the hazards to certain coldwater and warmwater fish, marine and estuarine organisms.

D. CRITERIA FOR REGISTRATION UNDER THIS DOCUMENT

To be subject to this guidance document, MPs must meet the following conditions:

1. Contain pendimethalin as the sole active ingredient and,
2. Conform to the acute toxicity limits, product composition, and use pattern requirements listed in Section F of this document.

Registration of products subject to this document must comply with all terms and conditions described in it, including commitment to fill data gaps on a schedule acceptable to EPA and consistent with that required of the present registrant. All registrants and applicants for registration under this document must follow the instructions contained in this document and complete and submit the appropriate forms within the specified time.

E. ACCEPTABLE RANGES AND LIMITS

1. Product Composition Standard

Technical grade products must contain at least 90.0 percent pendimethalin as the sole active ingredient. Each MP formulation proposed for registration must be fully described with an appropriate certification of limits. In addition, the active ingredient found in the MPs must be substantially similar to that in currently registered technical products. Any MP not meeting these requirements will be considered a new product and will not be registerable under this guidance document.

2. Acute Toxicity Limits

The Agency will consider registration of products containing pendimethalin, provided that the product labeling bear appropriate precautionary statements for the acute toxicity category in which each product is placed.

2. Acute Toxicity Limits

The Agency will consider registration of products containing pendimethalin, provided that the product labeling bear appropriate precautionary statements for the acute toxicity category in which each product is placed.

3. Use Patterns

To be registered under this standard, MPs containing pendimethalin must be labeled for formulation only into end-use herbicide products for the commodities listed below. The attached index entry lists all registered uses, as well as approved maximum application rates and frequencies.

Pendimethalin, a selective herbicide, is registered for control of broadleaf weeds and grassy weed species on the following sites: soybeans, cotton, field corn, beans, peanuts, potatoes, rice, sorghum, sunflower, tobacco, ornamentals, non-bearing fruit and nut crops, and vineyards. One site, jojoba is registered under Section 24(c) in Arizona.

F. REQUIRED LABELING

All technical grade products, MPs, and EPs containing pendimethalin must bear appropriate labeling as specified in 40 CFR § 162.10. Other portions of this guidance package contain specific information regarding label requirements.

In addition to the requirements stated in 40 CFR § 162.10, the following information must appear on the labeling no later than April 30, 1986.

1. Ingredient Statement

The ingredient statement for MPs must list the active ingredient as:

Pendimethalin, N-(1-ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine ..._____%

2. Manufacturing-Use Product Statements

All products intended for formulation into end-use products must bear the following statement:

"This pesticide is toxic to fish. Do not discharge effluent containing this product directly into lakes, streams, ponds, estuaries, oceans or public waters unless this product is specifically identified and addressed in a National Pollutant Discharge Elimination System (NPDES) permit. Do not discharge effluent containing this product into sewer systems without previously notifying the sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the Environmental Protection Agency".

G. TOLERANCE REASSESSMENT

The Acceptable Daily Intake (ADI) for pendimethalin was originally based upon a 2-year feeding study on rats, which was subsequently declared invalid. Subsequently, the Provisional Acceptable Daily Intake (PADI) for pendimethalin was calculated, using the 90 day portion of the same study. The subchronic portion of this study was used instead of a 2-year dog study because the (P)ADI value calculated for the rat is the more conservative value on a mg/kg basis than for the dog:

	NOEL (mg/kg)	Safety Factor	(P)ADI mg/kg/day	(P)MPI mg/day (60 kg
Rat	25.0	2,000	0.0125	0.7500
Dog	12.0	100	0.1250	7.5000

The No-Observable-Effect-Level (NOEL) for the rat study is 25.0 mg/kg. A 2,000-fold safety factor was used and the PADI was calculated as 0.0125 mg/kg/day with a Maximum Permissible Intake (MPI) of 0.7500 mg/day for a 60 kg person. The Theoretical Maximum Residue Contribution (TMRC) for pendimethalin-based permanent tolerances is 0.0166 mg/day for a 1.5 kg diet. Currently, the permanent tolerances utilize 2.22 % of the PADI.

The Agency is unable to complete a full tolerance reassessment because the available pendimethalin toxicology and residue data do not fully support the established tolerances listed below. The metabolism of pendimethalin in animals and plants is not fully understood. Therefore, the Agency is requiring data on the metabolism of pendimethalin and related metabolite(s) in crops and animals, and on storage stability. Additional long term rat and mouse studies are also required. The additional data will be used to assess dietary exposure to pendimethalin and may lead to revisions in the existing tolerances. Therefore, the Agency will not grant any significant pending or new tolerances for pendimethalin until the data are submitted.

In the United States, tolerances are currently established in 40 CFR § 180.361 for the combined residues of the herbicide, pendimethalin: N-(1-ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine and its metabolite: 4-[1-ethylpropyl)amino]-2-methyl-3,5-dinitrobenzyl alcohol, in or on the raw agricultural commodities listed below:

Commodities	Parts per million
** Beans (lima, dry, snap)	0.1
** Beans, forage	0.1
** Beans, hay	0.1
Corn, fodder	0.1
Corn, forage	0.1
** Corn, fresh(including sweet, K+CWHR)	0.1
Corn, grain	0.1
Cottonseed	0.1
Peanuts	0.1
Peanut hay	0.1
Peanut forage	0.1
Rice grain	0.05
Soybeans	0.1
Soybeans, forage	0.1
Soybeans, hay	0.1
Sunflower seeds	0.1

** The tolerances for these commodities were established after the science reviews for the pendimethalin registration standard were completed.

International Tolerances

Presently, there are no tolerances for residues of pendimethalin in Canada, Mexico, or in the Codex Alimentarius.

Reproduced from best available copy.

EPA Index to Pesticide Chemicals

PENDIMETHALIN*

h108501

TYPE PESTICIDE: Herbicide, Plant Regulator

FORMULATIONS:

Tech (90%)
G (1%, 10%)
EC (2.98 lb/gal, 3 lb/gal, 4 lb/gal)

GENERAL WARNINGS AND LIMITATIONS: Pendimethalin controls germinating weeds; it will not control established weeds. Destroy existing weeds prior to application. Conditions that delay germination or extend it over a long period of time may reduce weed control. Uneven application or improper soil incorporation can reduce weed control or cause crop injury. Conditions that weaken crop seedlings and plants also increase the possibility of crop damage. Should weeds develop, a shallow cultivation or rotary hoeing will generally result in better weed control. Pendimethalin applications may be followed by any registered herbicide. Liquid formulations may be applied in compatible liquid fertilizers. Pendimethalin may be impregnated on dry bulk fertilizers for preplant incorporated applications. In such cases, use between 200 and 450 pounds of dry bulk fertilizer with the recommended amount of herbicide per acre. Make aerial sprays in 5 or more gallons of water per acre. Reduce dosage in proportion to band area actually treated. Treated areas may be planted to other crops the following year. Winter wheat and winter barley may be planted in the fall 120 days after a pendimethalin application in any crop. In irrigated crops, do not plant winter wheat or winter barley in the fall if crop failure occurs and the land is fallowed during the summer as crop injury may result. Do not plant winter wheat or winter barley in the fall to treated land using no-tillage procedures as crop injury may result. Do not feed forage or graze livestock for 75 days after planting wheat or barley in treated areas. To avoid crop injury, do not plant sugar beets, red beets or spinach for 12 months following application.

TIME REQUIRED FOR CONTROL: Not located.

PHYTOTOXICITY TO TARGET WEEDS: Not located

MODE OF ACTION: Herbicidal effect seems to be related to the inhibition of cell division.

BROADLEAF WEEDS CONTROLLED:

amaranth	(a,c,f,j,k,m,n)	PAFACAA
carpetweed	(a,c,f,j,m,n)	PADABBA
common lambsquarters	(a,c,f,j,k,m,n,o)	PBDAEBA

---

*N-(1-ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine
Prowl

BROADLEAF WEEDS CONTROLLED: (continued)

common purslane	(a,c,f,j,k,m,n)	PEDADBA
Florida pusley	(a,c,f,j,m,n)	PEMAEBB
kochia	(c,f,j,k,n)	PBDAIBA
ladysthumb	(l)	PEAAGBP
Pennsylvania smartweed	(a,d,l,o)	PEAAGBO
redroot pigweed	(o)	PAFACBI
spurge (annuals)	(c,f,j,m,n)	PBVAGAA
velvetleaf	(a,d,l,o)	PDAABBB
venice mallow	(o)	PDAAEBC

GRASSES AND OTHER MONOCOTS CONTROLLED:

barnyardgrass	(a,c,f,j,k,m,n,o)	PCABHBB
broadleaf signalgrass	(a,c,f,j,m,n)	PCAARBD
crabgrass	(a,c,f,j,k,m,n,o)	PCABFAA
crowfootgrass	(c,f,m)	PCABCBA
fall panicum	(a,c,f,j,k,m,n,o)	PCACEBD
field sandbur	(j)	PCAAWBB
giant foxtail	(a,c,f,j,k,m,n,o)	PCACUBA
goosegrass	(a,c,f,j,k,m,n)	PCABIBA
green foxtail	(a,c,f,j,k,m,n,o)	PCACUBF
itchgrass	(i)	PCACOBA
johnsongrass	(e)	PCACWBC
johnsongrass (seedling)	(a,c,f,j,m,n)	PCACWBG
panicum	(p)	PCACEAA
proso millet	(b,j)	PCACEBI
rice	(h)	PCACCBA
shattercane	(g,j)	PCACWBB
Texas panicum	(a,c,f,j,m,n)	PCACEBL
witchgrass	(a,f,j,m,n)	PCACEBC
woolly cupgrass	(a)	PCABLBB
yellow foxtail	(a,c,f,j,k,m,n,o)	PCACUBD

PLANT REGULATOR CLAIMS:

tobacco sucker control	PZZZZZA

(a) control in field corn with preemergence rates of 0.75-2.0 lb a.i./A

(b) reduced competition in field corn with preemergence rates of 0.75-2.0 lb a.i./A

(c) control in cotton with preplant incorporated rates of 0.5-1.5 lb a.i./A; and in peanuts with preplant incorporated rates of 0.5-1.0 lb a.i./A

Footnotes (continued)

(d) reduced competition in cotton, peanuts, soybeans and sunflowers with preplant incorporated rates of 0.5-1.5 lb a.i./A; and in field corn and grain sorghum with postemergence incorporated rates of 0.5-1.5 lb a.i./A; and in transplanted tobacco with preplant incorporated rates of 0.75-1.5 lb a.i./A

(e) suppression only in cotton and soybeans with preplant incorporated rates of 1-2 lb a.i./A

(f) control in soybeans with preplant incorporated rates of 0.5-1.5 lb a.i./A

(g) control in soybeans with preplant incorported rates of 1.0-1.5 lb a.i./A

(h) control in soybeans with preplant incorporated rates of 1-2 lb a.i./A

(i) suppression only in soybeans with preplant incorporated rates of 1-2 lb a.i./A

(j) control in field corn and grain sorghum with postemergence incorporated rates of 0.5-1.5 lb a.i./A

(k) control in potatoes with preemergence or preemergence incorporated rates of 0.75-1.5 lb a.i./A

(l) reduced competition in potatoes with preemergence or preemergence incorporated rates of 0.75-1.5 lb a.i./A

(m) control in transplanted tobacco with preplant incorporated rates of 0.75-1.5 lb a.i./A

(n) control in sunflowers with preplant incorporated rates of 0.5-1.5 lb a.i./A

(o) control in field corn with preemergence rates of 1.5-2.0 lb a.i./A

(p) control in cotton with preplant incorporated rates of 0.56-1.5 lb a.i./A

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations	
AGRICULTURAL CROPS		
Corn, field	0.1 ppm (fodder, forage, grain) Winter wheat and winter barley may be planted in the fall 90 days after a postemergence incorporated application in an irrigated crop. The treated crop must be grown to maturity and harvested before planting wheat or barley. General Information: With the exception of minimum tillage systems, the seed bed should be firm and free of clods and trash. Use only where adequate tillage is practiced to provide good seed coverage. Plant seed at least 1.5 inches deep. Adequate rainfall or overhead irrigation is necessary within 7 days after application for optimum control. If cultivation is necessary because of soil crusting, soil compaction, or weed germination before rain or irrigation, use shallow tillage, being certain that the corn seeds are below the tilled area. Wait 7-10 days before cultivating after early postemergence treatments. Use the higher rates for fine soils, or those with higher organic matter content, or if heavy weed populations are anticipated, or if extensive crop residues were present prior to seedbed preparation. Do not use on muck or peat soils. If crop loss occurs, corn, cotton or soybeans can be replanted the same year without adverse effects. If corn is replanted, seeding depth must be below the retilled area. Do not apply more than once per crop season.	28006AA
0.75-2.0 (4 lb/gal EC)	Preemergence. Broadcast or band. Apply after planting, but before weeds and crop emerge in 10 or more gallons of water or in 20 or more gallons of liquid fertilizer per acre by ground equipment. Make aerial applications in 5 or more gallons of water per acre.	
1.5-2.0 (10% G) (3 lb/gal EC)	Preemergence. Broadcast or band. Apply at or after planting, but before weeds and crop emerge. Apply the EC in 10 or more gallons of water per acre. Do not use on sands or loamy sands. Do not use on soils with less than 1.5% organic matter content.	

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
AGRICULTURAL CROPS	
Corn, field (continued)	
1.0-1.5 (3 lb/gal EC) 0.75-1.5 (4 lb/gal EC)	Preemergence. Broadcast or band. Do not apply the 3 lb/gal EC on sands or loamy sands, or on soils that contain less than 1.5% organic matter. Tank mix with atrazine; or cyanazine.
1.5 (4 lb/gal EC)	Use limited to IL, IN, IA, KS, MI, MN, MO, NE, NY, ND, OH, PA, SD and WI. Preemergence. Broadcast or band. Apply only on level planted corn. Do not use on sands, loamy sands, sandy loams, peat or or muck soils. Do not use on medium textured soils containing less than 3% organic matter. Tank mix with dicamba, dimethylamine or sodium salts.
1.0-1.5 (4 lb/gal EC)	Early postemergence. Broadcast or band. Apply in 10 or more gallons of water by ground equipmen or in 5 or more gallons of water by air. Do not apply in liquid fertilizer or following premergent pendimethalin applications. Apply no later than the corn 2-leaf stage of growth, and when weeds are no more than 1 inch tall. Tank mix with atrazine; or WP cyanazine formulations.
0.5-1.5 (4 lb/gal EC)	Postemergence incorporated. The field must be cultivated and all emerged weeds must be destroyed prior to application. This should be done with a sweep-type or rolling cultivator operated at sufficient speed to throw at least one inch of soil over the bases of the corn plants. Apply uniformly to the soil surface in 10 or more gallons of water per acre by ground equipment; use drop nozzles, if necessary. Apply from the 4-inch growth stage to as late as the last cultivation (layby) and incorporate thoroughly as soon as possible, but within 7 days after application. If adequate moisture is not received within 7 days after application, incorporate with a sweep-type or rolling cultivator. If cultivation is needed after application and incorporation, the depth of the cut should not

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations	
AGRICULTURAL CROPS		
Corn, field (continued)		
	exceed that used for incorporation. Livestock can graze or be fed forage from treated fields 21 days after applications. May be tank mixed with atraziine.	
Cotton	0.1 ppm (cottonseed) Do not feed forage or graze livestock in treated cotton fields. General Information: Do not plant winter wheat or winter barley as follow crops if higher rates were used for rhizome johnsongrass control. Where incorporation is required, do so within 7 days after application prior to planting. For flat-planted cotton, mechanical incorporation should be into the top 1-2 inches of soil. When application is to be made over the beds of bedded cotton, mechanical incorporation should be into the top 1-2 inches of soil. When applying to flat land prior to bedding, mechanical incorporation should be of sufficient depth so that bedding does not bring up untreated soil. After application, rotary hoeing, shallow cultivation or hand hoeing can be practiced without reducing weed control. Use the higher rates for fine soils, or if heavy weed populations are anticipated, or if application is made from 60-140 days before planting, or if extensive crop residues were present prior to seedbed preparation. Use the 1.5 lb a.i./A rate on heavy, clay soils. If loss of cotton crop occurs, any crop registered for preplant incorporated use can be replanted the same year into treated soil without adverse effects. If replanting is necessary, do not rework the soil deeper than the originally treated zone.	28007AA

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
AGRICULTURAL CROPS	
Cotton (continued)	
0.5-1.5 (4 lb/gal EC) 0.56-1.5 (3 lb/gal EC)	Preplant incorporated. Broadcast or band. Apply uniformly in 10 or more gallons of water or in 20 or more gallons of liquid fertilizer per acre by ground equipment. Apply in 5 or more gallons of water per acre by aircraft. Apply immediately before planting or up to 60 days prior to planting in all states except AZ, CA, LA, NM, MI, OK and TX where it may be applied in the fall, after October 15th (up to 140 days prior to planting cotton). May be followed by an overlay preemergence application of diuron; or fluometuron.
1.0-2.0 (4 lb/gal EC)	Preplant incorporated. Broadcast or band. For control of rhizome johnsongrass, use a chisel plow or similar implement to bring the rhizomes to the surface. Chop rhizomes into small pieces with a disk harrow set to cut 4-6 inches deep and operate in two different directions at 4-6 mph. Apply uniformly in 10 or more gallons of water or in 20 or more gallons of liquid fertilizer per acre by ground equipment. Apply in 5 or more gallons of water per acre by aircraft. Apply immediately before planting or up to 60 days prior to planting. Incorporate as soon as possible and within 7 days after application. Deep and thorough incorporation is necessary. Rhizome johnsongrass will be suppressed after the first year and controlled after the same treatment the following year. Do not use in AZ, CA and NM. Do not use on soils with more than 3% organic matter content.
0.5-1.5 (4 lb/gal EC)	Use limited to AZ, CA, NM and the upper and lower El Paso Valley of TX. Preplant incorporated. Broadcast or band. Apply uniformly in 10 or more gallons of water per acre by ground equipment. May be applied prior to listing or over partially finished or finished beds. Incorporate immediately after application. Maintain good agitation at all times. Use mechanical agitation in AZ and CA. Tank mix with prometryn.

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations	
AGRICULTURAL CROPS		
Cotton (continued)		
0.5-1.5 (4 lb/gal EC)	Preemergence. Broadcast or band. Apply uniformly in 10 or more gallons of water or in 20 or more gallons of nitrogen solution per acre by ground equipment immediately after planting. Make sure cotton seeds are planted 1 inch or deeper. Do not use in AZ, CA, NM, OK or TX. Tank mix with fluometuron; or norflurazon (apply norflurazon tank mix in water only).	
Peanuts	0.1 ppm (peanuts, hay, forage) 0.25 ppm (peanut hulls) General Information: Where incorporation is required, do so within 7 days after application prior to planting. For flat-planted peanuts, mechanical incorporation should be into the top 1-2 inches of soil. When application is to be made over beds of bedded peanuts, mechanical incorporation should be into the top 1-2 inches. When applying to flat land prior to bedding, mechanical incorporation should be of sufficient depth so that bedding does not bring up untreated soil. After application, shallow cultivation or hand hoeing can be practiced without reducing weed control. Use the high rate for each region if heavy weed populations are anticipated or if extensive crop residues were present prior to seedbed preparation. If loss of peanut crop occurs, peanuts or any crop registered for preplant incorporated use can be replanted the same year. If replanting is necessary do not rework the soil deeper than the originally treated zone.	028015AA
	Preplant incorporated. Broadcast or band. Apply uniformly in 10 or more gallons of water or in 20 or more gallons of liquid fertilizer per acre by ground equipment. Apply in 5 or more gallons of water per acre by aircraft. Apply immediately before planting or up to 60 days prior to planting. May be tank mixed with vernam.	
0.5-0.75 (4 lb/gal EC)	Dosage for NM, OK and TX.	
0.75-1.0 (4 lb/gal EC)	Dosage for other peanut-growing states.	

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations	
AGRICULTURAL CROPS		
Potatoes	0.1 ppm (potato)	014013AA
	General Information: Where incorporation is required, do so within 7 days after application prior to planting. Incorporation is not necessary if adequate rainfall or irrigation is received within 7 days after application. Where drag-off is practiced, apply and incorporate before, at, or after drag-off but before potatoes and weeds emerge. When applying as a preemergent incorporated treatment, incorporation should be uniform and into the top 1-2 inches of soil. May be applied preemergence through sprinkler irrigation systems in all states except CA. Use the higher rates for fine soils with more than 3% organic matter, or when heavy infestations of grass or broadleaf weeds are anticipated or if extensive crop residues were present prior to seedbed preparation. Do not use on peat or muck soils. Previous crop residues should be thoroughly mixed to a depth of 4-6 inches by plowing or discing before planting potatoes.	
0.75-1.5 (4.0 lb/gal EC)	Preemergence. Broadcast or band. Apply after planting, but before potatoes and weeds emerge or after drag-off in 10 or more gallons of water or in 20 or more gallons of liquid fertilizer per acre by ground equipment. Make aerial applications in 5 or more gallons of water per acre. Use higher rates on fine textured soils with greater than 3% organic matter. May be applied through sprinkler irrigation systems in all states but CA. Do not apply when wind velocity is greater than 10 mph. Agitation must be maintained in the nurse tanks. Apply in 0.5-0.75 inches of irrigation water.	
0.75-1.5 (4.0 lb/gal EC)	Preemergence incorporated. Broadcast or band. Apply and incorporate after planting or before, at, or after drag-off, but before potatoes and weeds emerge in 10 or more gallons of water or in 20 or more gallons of liquid fertilizer per acre by ground equipment. Make aerial applications in 5 or more gallons of water per acre. Use higher rates on fine textured soils with more than 3% organic matter. May be applied through sprinkler irrigation systems in all states but CA. Agitation must be maintained in the nurse tanks.	

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations	
AGRICULTURAL CROPS		
Potatoes (continued)		
0.5-1.5 (4 lb/gal EC)	Preemergence. Broadcast or band. Apply after planting, but before potatoes and weeds emerge or after drag-off in 10 or more gallons of water or 20 or more gallons of liquid fertilizer per acre by ground equipment. Make aerial applications in 5 or more gallons of water per acre. Use higher rates on fine textured soils with greater than 3% organic matter. Tank mix with metribuzin.	
0.5-1.75 (4 lb/gal EC)	Preemergence incorporated. Broadcast or band. Apply and incorporate after planting, or before, at, or after drag-off, but before potatoes and weeds emerge in 10 or more gallons of water or in 20 or more gallons of liquid fertilizer per acre by ground equipment. Make aerial applications in 5 or more gallons of water per acre. Use higher rates on fine textured soils with greater than 3% organic matter. Tank mix with eptam.	
Rice	0.05 ppm (rice grain) Do not bale or use rice straw from treated fields for feed or bedding. General Information: Do not use treatment in water-seeded rice. Do not apply if there is a chance of rain within 6-8 hours. Adequate rainfall or irrigation (flush) should be received within 7 days after application. No flood water should be on fields at time of application. Use high rates for medium and fine textured soils if heavy weed populations are present. Do not apply tank mixture within 14 days before or after insecticide treatments, do not make more than one application per season or apply in liquid fertilizer. Previous crop residues should be thoroughly mixed into the soil to a depth of 4-6 inches by plowing or disking before planting rice. Apply when barnyardgrass is in the 1-3 leaf growth stage with an occassional 4 leaf plant or when sprangletop is less than 0.5 inches.	024004AA

Site, Dosage and Formulation (lb a.i./A)	Tolerance, use, Limitations	
AGRICULTURAL CROPS		
Rice (continued)		
0.75-1.0 (4 lb ai/gal EC)	Early postemergence. Use on dry-seeded rice. Do not use in CA. Apply according to stage of growth of barnyardgrass and/or sprangletop. Apply after rice emergence by ground equipment in 15-25 gallons of water per acre, or aerially in 10-12 gallon of water per acre for adequate coverage. Minimize drift; do not spray aerially if wind velocity is greater than 5 mph or by ground if wind velocity is greater than 10 mph. Tank mix with propanil.	
Sorghum, grain	0.1 ppm (fodder, forage, grain) Winter wheat and winter barley may be planted in the fall 90 days after a postemergence incorporated application in an irrigated crop or 120 days after an application in the dry land crop. The treated crop must be grown to maturity and harvested before planting to wheat or barley. Livestock can graze or be fed forage from treated crop 21 days after application. General Information: Treatments must be thoroughly and uniformly incorporated into the top 1 inch of soil, or receive adequate irrigation water or rainfall within 7 days after application. Mechanical incorporation provides best results under situations of low rainfall or soil moisture when deep germinating weeds such as shattercane or field sandbur are anticipated. Treatments can be applied from the 4 inch growth stage to as late as the last cultivation (layby) of sorghum. When cultivation is needed after application and incorporation, the depth of cut should be no deeper than the depth of cut used to incorporate. Do ot use on peat or muck soils. Use higher rates when heavy weed infestation are anticipated or on fine textured soils. Do not apply more than once a crop season.	28019AA

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations	
AGRICULTURAL CROPS		
Sorghum, grain (continued)		
0.5-1.5 (4 lb/gal EC)	Postemergence incorporated. The field must be cultivated and all emerged weeds destroyed prior to application. This should be done with a sweep-type or rolling cultivator operated at sufficient speed to throw at least one inch of soil over the bases of the grain sorghum plants. Apply uniformly in 10 or more gallons of water per acre by ground equipment; use drop nozzles, if necessary.	
Soybeans	0.1 ppm (Soybeans, forage and hay) General Information: Do not plant winter wheat or winter barley as follow crops if higher rates were used for rhizome johnsongrass or itchgrass suppression, or for red rice control. Where incorporation is required, do so within 7 days after application prior to planting. For flat-planted soybeans, mechanical incorporation should be into the top 1-2 inches of soil. When applying to flat land prior to bedding, mechanical incorporation should be of sufficient depth so that bedding does not bring up untreated soil. Use the higher rates on fine soils, and if heavy weed populations are anticipated, or if extensive crop residues were present prior to seedbed preparation. Use the 1.5 lb a.i./A rate on heavy, clay soils. If crop loss occurs, any crop registered for preplant incorporated use can be replanted. If replanting is necessary, do not rework the soil deeper than the originally treated zone. Do not use in CA.	28023AA
0.5-1.5 (4 lb/gal EC)	Preplant incorporated. Broadcast or band. Apply uniformly in 10 or more gallons of water or in 20 or more gallons of liquid fertilizer per acre by ground equipment. Apply in 5 or more gallons of water per acre by aircraft. Apply immediately prior to planting or up to 60 days prior to planting. In the Southern States including the Eastern Coastal Plain there are no organic matter restrictions. For the Northern States, use the higher rates when organic matter is greater than 3%. Livestock can graze or be fed soybean forage from treated fields.	

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
AGRICULTURAL CROPS	
Soybeans (continued)	
0.5-1.25 (4 lb/gal EC)	Preplant incorporated. Broadcast or band. Apply uniformly in 10 or more gallons of water per acre by ground equipment, or in 5 or more gallons of water by aircraft. Tank mix with metribuzin; or follow with a preemergence application of metribuzin; or linuron.
0.75-1.25 (4 lb/gal EC)	Use limited to the Northern States. Preplant incorporated. Broadcast or band. Apply uniformly in 10 or more gallons of water per acre by ground equipment, or in 5 or more gallons of water by aircraft. Tank mix with chloramben; or chloramben and metribuzin; or follow with a preemergence application of chloramben.
1.0-1.5 (4 lb/gal EC)	Preplant incorporated. Broadcast or band. For the control of shattercane, apply and incorporate into the top 2 inches of soil. Cultivation may be required to control weed escapes and late germinating shattercane. May be followed with a preemergence application of metribuzin; or chloramben; or linuron. May be tank mixed with metribuzin at the lower pendimethalin dosage of 0.75-1.25 lb a.i./A.
1-2 (4 lb/gal EC)	Preplant incorporated. Broadcast or band. For the control of red rice and suppression of itchgrass.
1-2 (4 lb/gal Ec)	Preplant incorporated. Broadcast or band. For control of rhizome johnsongrass, use a chisel plow or similar implement to bring the rhizomes to the surface. Chop rhizomes into small pieces with a disk harrow set to cut 4-6 inches deep and operate in two different directions at 4-6 mph. Apply uniformly in 10 or more gallons of water or in 20 or more gallons of liquid fertilizer per acre by ground equipment. Apply in 5 or more gallons of water per acre by aircraft. Apply immediately before planting or up to 60 days prior to planting.

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations	
AGRICULTURAL CROPS		
Soybeans (continued)		
	Incorporate as soon as possible and within 7 days after application. Deep and thorough incorporation is necessary. Rhizome johnsongrass will be suppressed after the first year and controlled after the same treatment the following year. Do not use in AZ, CA and NM or on soils with more than 3% organic matter.	
0.5-1.25 (4 lb/gal EC)	Preemergence. Broadcast or band. Apply uniformly in 10 or more gallons of water per acre by ground equipment; or in 5 or more gallons of water by aircraft. Tank mix with metribuzin; or linuron.	
0.75-1.25 (4 lb/gal EC)	Use limited to the Northern States Preemergence. Broadcast or band. Apply uniformly in 10 or more gallons of water per acre by ground equipment, or in 5 or more gallons of water by aircraft. Tank mix with chloramben; or chloramben and metribuzin.	
0.5-1.25 (4 lb/gal EC)	Preemergence. Broadcast. For use in minimum and no-till soybeans. Apply uniformly in 20-60 gallons of water per acre with ground equipment. Apply at planting or up to 2 days after planting. Adequate rainfall must be received within 7 days after treatment. Do not use on peat or muck soils. Tank mix with metribuzin and paraquat dichloride; or linuron and paraquat dichloride. Delete paraquat dichloride from the tank mixes if vegetation is absent at the time of application.	
Sunflower	0.1 ppm (sunflower seeds) Do not feed forage or graze livestock in treated sunflower beds. General Information: Where incorporation is required, do so within 7 days after application prior to planting. For flat planted sunflowers, mechanical incorporation should be into the top 1-2 inches of soil. When application is to be made	28021AA

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
AGRICULTURAL CROPS	
Sunflower (continued)	
	over beds of bedded sunflowers, mechanical incorporation should be into the top 1-2 inches of soil. When applying to flat land prior to bedding, mechanical incorporation should be of sufficient depth so that bedding does not bring up untreated soil. After application, rotary hoeing, shallow cultivation, or hand hoeing can be practiced without reducing weed control. Use the higher rates for fine soils or if heavy weed populations are anticipated, or if extensive crop residues were present prior to seedbed preparation. Use the 1.5 lb a.i./A rate on heavy, clay soils. Do not use on peat or muck soils. If loss of sunflower crop occurs, any crop registered for preplant incorporated use can be replanted. If replanting is necessary do not rework the soil deeper than the originally treated zone.
0.5-1.5 (4 lb/gal EC)	Preplant incorporated. Broadcast or band. Apply uniformly in 10 or more gallons of water or in 20 or more gallons of liquid fertilizer per acre by ground equipment. Apply in 5 or more gallons of water per acre by aircraft. For Southern States there are no organic matter restrictions. For Northern States, use higher rates on soils with more than 3% organic matter.
0.75-1.25 (4 lb/gal EC)	Use limited to Northern States. Preplant incorporated. Broadcast or band. Apply uniformly in 10 or more gallons of water per acre by ground equipment. Apply in 5 or more gallons of water per acre by aircraft. Do not use on coarse soils. Use higher rates on fine soils with more than 3% organic matter. Use higher rates for each soil texture if velvetleaf and smartweed infestations are anticipated. Tank mix with, or follow with a preemergence application of chloramben.

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations	
Tobacco	N.F. General Information: For weed control in transplanted tobacco. Do not apply as a post transplant spray. Where incorporation is required, do so within 7 days after application, prior to planting. May be applied immediately before transplanting or up to 60 days prior to transplanting tobacco. Thoroughly mix the previous crop residues into the soil to a depth of 4-6 inches, prior to application. When applying to flat land prior to bedding, mechanical incorporation should be of sufficient depth so that bedding does not bring up untreated soil. When applying to flat land that will not be bedded, mechanical incorporation should be into the top 1-2 inches of soil. During transplanting, or if beds must be reshaped prior to transplanting, avoid tillage that will bring untreated soil to the surface or expose untreated soil on the bed or in the furrow. After application, shallow cultivation or hand hoeing can be practiced without reducing weed control. Use the higher rates for fine textured soils, or where heavy weed infestations are anticipated, or if extensive crop residues were present prior to seedbed preparation. Do not use on peat or muck soils. If loss of tobacco crop occurs, any crop registered for preplant incorporated use can be replanted. If replanting is necessary, do not rework the soil deeper than the originally treated zone.	26003AA
0.75-1.5 (4 lb/gal EC)	Preplant incorporated. Broadcast or band. Apply uniformly in 10 or more gallons of water per acre by ground equipment. In FL, GA, MD, NC, SC and VA do not exceed 1.25 lb a.i./A. Use the higher rates on fine textured soils.	

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
1.49 (2.98 lb/gal EC)	Sucker control in flue-cured tobacco. Make two applications to tobacco that is uniform in height, or to non-uniform tobacco that is to be topped low enough so that the remaining upper leaves are fully expanded. Make the first application at early first flowering, just after topping. Make the second application before axillary buds exceed one half inch in length. Apply in 50 gallons of water per acre with boom type power sprayers, or in 1 gallon of water per 130-160 plants with hand operated sprayers (with proportionately less active ingredient). Formulated with xylene.
1.49 (2.98 lb/gal EC)	Sucker control in flue-cured tobacco. Use on irregularly flowering tobacco or tobacco that is to be topped at full height in the button stage or earlier. Make a single application of fatty alcohols (0.5% C6, 42% C8, 56% C10, 1.5% C12) at topping time. Follow with an application of pendimethalin before axillary buds exceed one half inch in length. Apply in 50 gallons of water per acre with boom type power sprayers, or in 1 gallon of water per 130-160 plants with hand operated sprayers (with proportionately less active ingredient). Formulated with xylene.
1.86 (2.98 lb/gal EC)	Sucker control in burley tobacco. Top when the majority of plants are in the early flowering stage. Top low enough so that the remaining upper leaves are fully expanded. Apply immediately after topping. Make only one application per year. Apply in 50 gallons of water per acre with boom type power sprayers, or in 1 gallon of water per 130-160 plants with hand operated sprayers (with proportionately less active ingredient). Formulated with xylene.

EPA Index to Pesticide Chemicals

PENDIMETHALIN

Site, Dosage and Formulation	Tolerance, Use, Limitations	
ORNAMENTALS		
Abelia		34016AA
Arborvitae		35021AA
Bottlebrush		34262AA
Boxwood		34031AA
Camellia		34036AA
Chamaecyparis		35038AA
Cotoneaster		34045AA
Dogwood		35043AA
Euonymus		34053AA
Firethorn		34058AA
Forsythia		34062AA
Gardenia		34063AA
Holly		34070AA
Hydrangea		34073AA
Juniperus		35073AA
Ligustrum		34088AA
Oak		35093AA
Oleander		34102AA
Pieris		34111AA
Pine		35098AA
Pittosporum		34113AA
Potentilla		34115AA
Rhododendron		34118AA
Spirea		34130AA
Viburnum		34137AA
Xylosoma		34084AA
Yew		35130AA
1 (1% G)	Weed control in container (potted liners, bare root liners, individual containers) and field grown woody ornamentals. Loosen the soil to remove existing weeds prior to application. Apply evenly and water in immediately after application. For season long weed control, reapply at 3 month intervals. Do not incorporate or use in greenhouses. Formulated with oxyfluorfen.	

Site, Dosage and Formulation	Tolerance, Use, Limitations

AERIAL AND TANK MIX APPLICATIONS

Aerial Application

9001500

- -	Refer to AGRICULTURAL CROPS Corn, field, Cotton, Peanuts, Potatoes, Rice, Soybeans, Sunflowers

Tank Mix

- -	Refer to AGRICULTURAL CROPS Corn, field, Cotton, Peanuts, Potatoes, Rice, Sorghum, grain, Soybeans, Sunflowers

Listing of Registered Pesticide Products by Formulation

90% technical chemical
pendimethalin (108501)
000241-00245

1% granular
pendimethalin (108501) plus oxyfluorfen (111601)
000538-00172

10% granular
pendimethalin (108501)
000241-00254

2.98 lb/gal emulsifiable concentrate
pendimethalin (108501) plus xylene (086802)
000241-00247

3 lb/gal emulsifiable concentrate
pendimethalin (108501)
000241-00244

4 lb/gal emulsifiable concentrate
pendimethalin (108501)
000241-00243

PENDIMETHALIN

Appendix A

Listing of Common Chemical Names Used in the Entry

Chemical Code	Chemical Name (source)	EPA Acceptable Common/Chemical Name
028201	propanil	3', 4'-dichloropropionanilide
041401	eptam	S-ethyl dipropylthiocarbamate
041404	vernam	S-propyl dipropylthiocarbamate
100101	cyanazine	2-((4-chloro-6-(ethylamino)-S-triazin-2-yl)amino)-2-methylpropionitrile
101101	metribuzin	4-amino-6-(1,1-dimethylethyl)-3-(methylthio)-1,2,4-triazin-5(4H)-one

II. REQUIREMENT FOR SUBMISSION OF GENERIC DATA

A. This portion of the guidance document is a Notice issued under the authority of FIFRA sec. 3(c)(2)(B). The tables following this section list the data required for maintaining the registrability of each product.

EPA has determined that additional generic data described in Table A must be submitted to EPA for evaluation in order to maintain in effect the registration(s) of your product(s) identified as an attachment to the cover letter accompanying this guidance document. As required by FIFRA sec. 3(c)(2)(B), you are required to take appropriate steps to comply with this Notice.

EPA may suspend the registration of each of those products unless, within the specified time, you have informed EPA how you will satisfy the requirements of this Notice. Any such suspension will remain in effect until you have complied with the terms of this Notice.

B. What Generic Data[1] Must be Submitted. You may determine which generic data you must submit by consulting Table A at the end of this chapter. That table lists the generic data needed to evaluate the continued registrability of all products, and the dates by which the data must be submitted. The required studies must be conducted in accordance with EPA approved protocols (such as those contained in the Pesticide Assessment Guidelines [2] or data collected under the approved protocols of the Organization for Economic Cooperation and Development (OECD). If you do not wish to develop data in support of certain uses appearing in your labeling, you may delete those uses at the time you submit your revised labeling.

For certain kinds of testing (generally ecological effects), EPA requires the test substance to be a "typical formulation," and in those cases EPA needs data of that type

---

1/ Generic data pertain to the properties or effects of a particular ingredient, and thus are relevant to an evaluation of the risks of all products containing that ingredient, regardless of the product's unique composition or specific use. Product-specific data relate only to the properties or effects of a product with a particular composition (or a group of products with closely similar composition).

2/ The Pesticide Assessment Guidelines are available in hard copy or microfiche from the National Technical Information Service, 5285 Port Royal Road, Springfield, Va. 22161.

for each major formulation category (e.g., emulsifiable concentrates, wettable powders, granulars, etc.) These are classified as generic data and when needed are specified in Table A. EPA may possess data on certain "typical formulations" but not others. Note: "Typical formulation" data should not be confused with product-specific data (Table B) which are required on each formulation. Product-specific data are further explained in Chapter III of this document.

C. Options Available for Complying With Requirements to Submit Data

Within 90 days of your receipt of this Notice you must submit to EPA a completed copy of the form entitled "FIFRA Section 3(c)(2)(B) Summary Sheet" [EPA Form 8580-1, Appendix II-3] for each of your products. On that form you must state which of the following methods you will use to comply with the requirements of this Notice:

1. (a) Notify EPA that you will submit the data, and

(b) either submit the existing data you believe will satisfy the requirement, or state that you will generate the data by conducting testing. If the test procedures you will use deviate from (or are not specified in) the Pesticide Assessment Guidelines or protocols contained in the Reports of Expert Groups to the Chemicals Group, Organization for Economic Cooperation and Development (OECD) Chemicals Testing Programme, you must enclose the protocols you will use.

OR

2. Notify EPA that you have entered into an agreement with one or more other registrants to jointly develop (or share in the cost of developing) the data. If you elect this option, you must notify EPA which registrant(s) are parties to the agreement.

OR

3. File with EPA a completed "Certification of Attempt to Enter Into an Agreement With Other Registrants for Development of Data" (EPA Form 8580-6, Appendix II-4)*/

---

*/ FIFRA sec. 3(c)(2)(B) authorizes joint development of data by two or more registrants, and provides a mechanism by which parties can obtain an arbitrator's decision if they agree to jointly develop data but fail to agree on all the terms of the agreement. The statute does not compel any registrant to agree to develop data jointly.

(Footnote continued on next page)

OR

4. Request that EPA amend your registration by deleting the uses for which the data are needed. (This option is not available to applicants for new products.)

OR

5. Request voluntary cancellation of the registration(s) of your products for which the data are needed. (This option is not available to applicants for new products.)

D. Procedures for Requesting Changes in Testing Methodology and Extensions of Time

EPA recognizes that you may disagree with our conclusions regarding the appropriate ways to develop the required data or how quickly the data must be submitted. If the test procedures you plan to use deviate from (or are not specified in) the registration guidelines or protocols contained in the reports of the Expert Groups to the Chemical Groups, Organization for Economic Cooperation and Development (OECD) Chemicals Testing Programme, you must submit the protocol for Agency review prior to the initiation of the test.

If you think that you will need more time to generate the required data than is allowed by EPA's schedule, you may submit a request for an extension of time. The extension request must be submitted in writing to the Product Manager.

(Footnote continued from previous page)

In EPA's opinion, joint data development by all registrants subject to a data requirement or a cost-sharing agreement among all such registrants is clearly in the public interest. Duplication of testing could increase costs, tie up testing facilities, and subject an unnecessarily large number of animals to testing.

As noted earlier, EPA has discretion to suspend the registration of a product when a registrant fails to submit data required under FIFRA Section 3(c)(2)(B). EPA has concluded that it should encourage joint testing rather than duplicative testing, and that suspension should be withheld in certain cases to further this goal. Accordingly, if (1) a registrant has informed us of his intent to develop and submit data required by this Notice; and (2) a second registrant informs EPA that it has made a bona fide offer to the first registrant to share in the expenses of the testing [on terms to be agreed upon or determined by arbitration under FIFRA Section 3(c)(2)(B)(iii)]; and (3) the first registrant has declined to agree to enter into a cost-sharing agreement, EPA will not suspend the second firm's registration.

TABLE A
GENERIC DATA REQUIREMENTS FOR PENDIMETHALIN (90% A.I.)

Data Requirement	Composition [1/]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.120 Product Chemistry				
Product Identity:				
61-1 - Identity of Ingredients	TGAI	Yes	00106751	No
61-2 - Statement of Composition	TGAI	Partially	00106751	Yes 3/4/
61-3 - Discussion of Formation of Ingredients	TGAI	No		Yes 3/5/
Analysis and Certification of Product Ingredients				
62-1 - Preliminary Analysis	TGAI	Partially	00046347	Yes 2/6/
62-2 - Certification of Limits	TGAI	No	-	Yes 2/7/
62-3 - Analytical Methods for Enforcement of Limits	TGAI	Partially	00106751	Yes 3/8/
Physical and Chemical Characteristics				
63-2 - Color	TGAI	Yes	GS0187-001	No
63-3 - Physical State	TGAI	Yes	GS0187-001	No
63-4 - Odor	TGAI	Yes	GS0187-001	No
63-5 - Melting Point	TGAI	Yes	GS0187-001	No
63-6 - Boiling Point	TGAI	Yes	GS0187-001	No
63-7 - Density, Bulk Density, or Specific Gravity	TGAI	Yes	GS0187-001	No

TABLE A
GENERIC DATA REQUIREMENTS FOR PENDIMETHALIN

Data Requirement	Composition 1/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.120 Product Chemistry (continued)				
63- 8 - Solubility	TGAI	Partially	GS0187-001	Yes 2/9/
63- 9 - Vapor Pressure	PAI	Yes	GS0187-001	No
63-10 - Dissociation constant	PAI	No	-	Yes 2/
63-11 - Octanol/water partition coefficient	PAI	No	-	Yes 2/
63-12 - pH	TGAI	No	-	Yes 2/
63-13 - Stability	TGAI	Partially	GS0187-001	Yes 2/10/
Other Requirements:				
64- 1 - Submittal of samples	Choice	11/		

TABLE A

GENERIC DATA REQUIREMENTS FOR PENDIMETHALIN

§158.120 Product Chemistry
(continued)

1/ Composition: TGAI = Technical grade of the active ingredient; PAI = Pure active ingredient; Choice = Choice of several test substances determined on a case-by-case basis.

2/ Data are required and must be submitted no later than October 30, 1985.

3/ Data are required and must be submitted no later than April 30, 1986.

4/ The name and address of the manufacturer or producer of each starting material used in the 90% technical product is required.

5/ A discussion of each impurity believed to be present at >0.1% based on the beginning materials, all chemical reactions and any contamination is required.

6/ Five or more samples must be analyzed for the active ingredient (A.I.)/each impurity present for which a certified limit is required.

7/ A current Confidential Statement of Formula must be submitted.

8/ Quantitative methods to determine the remaining impurities in the technical product are required.

9/ Data are required for solvents in PPM solubility at 20 C.

10/ The following data are required for chemical stability: discussion of sensitivity of the A.I. to metal and metal ions, stability of the A.I. at normal and elevated temperatures, and the sensitivity of the A.I. to sunlight.

11/ This compound does not require the submittal of samples.

TABLE A
GENERIC DATA REQUIREMENTS FOR PENDIMETHALIN

Data Requirements	Composition 1/	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.125 Residue Chemistry				
171-4 - Nature of Residue (Metabolism)				
- Plants	PAIRA	Partially	00029803, 00067293 00031219, 00071121 00039535, 00074621 00039537, 00093698 00046278, 00106779 00046280, 00106795 00051963, 00108317 00051965, 00109915 00058478, GS0187-002	Yes 2/7/8/
- Livestock	PAIRA and plant metabolites	Partially	00067288, 00046275 00067289, 00071124 00046293	Yes 5/9/
171-4 - Residue Analytical Method				
- Plant residues	TGAI and metabolites	Partially	00019004, 00031214, 00070962 00023780, 00041898, 00071120 00023781, 00041901, 00072810 00023782, 00041904, 00072822 00024823, 00039519, 00072823 00025820, 00039520, 00072824 00025821, 00039522, 00072825 00025822, 00039526, 00106752 00025827, 00039527, 00106791 00025828, 00039528, 00106808 00025831, 00051958, 00106830 00025832, 00051959, 00025833, 00051960, 00025837, 00051961, 00029018, 00051962, 00029020, 00052558, 00031212, 00058835,	Yes 2/10/

TABLE A
GENERIC DATA REQUIREMENTS FOR PENDIMETHALIN

Data Requirements	Composition 1/	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
- Animal residues	TGAI and metabolites	Partially	00023796, 00058835	Yes 5/10/
171-4 - Storage Stability Data	PAI	Partially	00071129	Yes 5/11/
171-4 - Magnitude of the Residue-Residue Studies for Each Food Use				
Root & Tuber Vegetable Group 12/				
° Potatoes	TEP	Yes	00106797	No
Legume Vegetables (Succulent or Dried) Group 13/				
° Soybeans	TEP	Partially	00025818, 00029801 00041897	Yes 4/14/
Foliage of Legume Vegetables Group 15/				
° Soybeans forage and hay	TEP	Partially	00025818, 00029801	Yes 4/16/
Cereal Grains Group 17/				
° Corn, grain	TEP	Partially	00023786, 00023794 00023787, 00023795 00023788, 00023793 00023789, 00029029 00023790, 00030697 00023791, 00093697 00023792, 00106820	Yes 4/19/

TABLE A
GENERIC DATA REQUIREMENTS FOR PENDIMETHALIN

Data Requirements	Composition 1/	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
Cereal Grains Group				
° Rice grain	TEP	Yes	00067283, 00071120	No
° Sorghum, grain	TEP	Yes	00106791, 00106807 00114313	No
Forage, Fodder, & Straw of Cereal Grains Group 15/				
° Corn, forage and fodder	TEP	Partially	00023786, 00023794 00023787, 00023795 00023788, 00029028 00023789, 00029029 00023790, 00030697 00023791, 00093697 00023792, 00106820 00023793,	Yes 4/19/
° Sorghum, forage and fodder	TEP	Partially	00106791, 00106807 00114313	Yes 4/20/
Miscellaneous Commodities				
° Cottonseed	TEP	Partially	00018997, 00106829 00106752,	Yes 4/21/
° Peanuts	TEP	Partially	00031215, 00031217 00031216, 00106785	Yes 4/22/
° Peanut forage	TEP	Yes	00106785, GS0187-002	No
° Peanut hay	TEP	Yes	00106785, GS0187-002	No

TABLE A
GENERIC DATA REQUIREMENTS FOR PENDIMETHALIN

Data Requirements	Composition 1/	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.125 Residue Chemistry				
171-4 - Magnitude of the Residue-Residue Studies for Each Food Use				
Miscellaneous Commodities ° Sunflower seeds	TEP	Partially	00134355	Yes 4/23/
- Fish	EP	Partially	00046293, 00071124	Yes 4/24/
- Irrigated Crops	EP	28/		
-- Field trials	EP	28/		
-- Processed Food/Feed	EP	Reserved		

TABLE A
GENERIC DATA REQUIREMENTS FOR PENDIMETHALIN

Data Requirement	Composition 1/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.125 Residue Chemistry (continued)				
171-4 - Magnitude of the Residue-Residue Studies for Each Food Use				
- Meat/milk/poultry/eggs				
° Cattle	TGAI	Partially	00067290	Yes 4/25/
° Milk	TGAI	No	-	Yes 4/25/
° Hogs	TGAI	No	-	Yes 4/9/
° Goats	TGAI	No	-	Yes 4/25/
° Poultry	TGAI	No	-	Yes 4/26/
° Eggs	TGAI	No	-	Yes 4/26/
- Tobacco (non food)	EP	Partially	00129937	Yes 4/27/

17 (11)

TABLE A
GENERIC DATA REQUIREMENTS FOR PENDIMETHALIN

§158.125 Residue Chemistry
(continued)

1/ Composition: TGAI = Technical grade of the active ingredient; PAIRA = Pure active ingredient, radiolabelled; TEP = Typical end-use product; EP = End-use product.
2/ Data are required and must be submitted no later than April 30, 1987.
3/ Data are required and must be submitted no later than October 30, 1986.
4/ Data are required and must be submitted no later than July 30, 1986.
5/ Data are required and must be submitted no later than April 30, 1986.
6/ Data are required and must be submitted no later than October 30, 1985.
7/ Additional plant metabolism data are required to reveal the complete identity of radioactive extractable and non-extractable residues encountered in plant tissue resulting from treatment with radiolabeled pendimethalin.
8/ Levels of metabolites remaining in polar fractions must be determined for possible toxicological residue concerns.
9/ Metabolism studies utilizing ruminants are required. Animals must be dosed with ^{14}C ring labeled pendimethalin for 3 days at a level > 1.5 ppm to identify residues. Animals must be sacrificed within 24 hours of the final dose. Distribution and characterization of residues must be determined in milk, muscle, fat, kidney, and liver. If the ruminant metabolism differs significantly from the rat data, then swine metabolism data will also be required.
10/ If the additional metabolism data show the presence of new metabolites, then additional methodology data may be required.
11/ Additional data are required to show the stability of pendimethalin and its 3,5-dinitrobenzl alcohol metabolite in or on representative plant and animal samples stored at freezing temperatures for time intervals approximating those of the treated samples used to determine the magnitude of the residue.
12/ A crop group tolerance is not appropriate at this time for the following reason: residue data are required for 3 additional representative members of this crop group (carrot, radish, sugar beet).
13/ A crop group tolerance is not appropriate at this time for the following reason: data are required for two additional members of this group (beans and peas). Data for beans(dried, lima, snap) were reviewed and the tolerances were issued for beans after this residue chemistry project was completed. Data for peas (dried and succulent) in support of proposed tolerances for these commodities are currently under review.
14/ Depending on the results of the requested metabolism data, additional processing data (to be clarified) may be required for soybeans.
15/ A crop group tolerance is not appropriate at this time for the following reason: additional data are required to support the established tolerance for soybean hay, current data do not support the soybean forage tolerance. Data for bean foliage and straw were reviewed and the tolerances were issued for beans after this residue chemistry project was completed. Resdue data for peas and pea vines in support of proposed tolerances for this commodity are currently under review.

TABLE A
GENERIC DATA REQUIREMENTS FOR PENDIMETHALIN

§158.125 Residue Chemistry
(continued)

16/ Data are required for pendimethalin and its metabolite in or on soybean hay and straw harvested 60 days after an at-planting application made with ground or aerial equipment of the 4lb/ gallon emulsifiable concentrate (EC) or 60% dispersable granular (DP) at 2 lb ai/acre. Tests must be conducted in Illinois, Minnesota and Missouri.

17/ Proposed tolerances for two representative members of this crop group (barley and wheat) are currently pending. Data for sweet corn were reviewed and the tolerances were issued after this residue chemistry project for registration standard was completed.

18/ Proposed tolerances for three representative members of this crop group (barley, sweet corn and wheat) are currently pending. When the currently pending tolerances are established, a crop group tolerance should be considered at that time.

19/ If new metabolites are found, then additional field residue data for field corn may be required. When necessary, data will be extrapolated from the soybean processing study to corn.

20/ If new residue metabolites are found, additional metabolism and field residue data may be required for sorghum.

21/ Additional processing data may be required for cottonseed. When necessary, data will be extrapolated from the requested soybean processing study.

22/ Additional metabolism data on peanuts may be required. Additional processing data may be required for peanuts. When necessary, data will be extrapolated from the soybean processing study.

23/ Additional processing data may be required for sunflower seeds. When necessary, data will be extrapolated from the requested soybean processing study.

24/ Residues of pendimethalin and its metabolite in edible tissues of catfish and crayfish obtained from certain cultural conditions are required. Consult the Agency for appropriate test protocol.

25/ Lactating ruminants must be dosed with 0.1, 0.3, and 1.0 ppm pendimethalin (> three animals/dose group) in the total diet until residues plateau in milk or for 28 consecutive days if no residues are detected in milk. Consult the Agency for appropriate test protocol.

26/ A study on metabolites of pendimethalin in poultry will be required if additional metabolites of concern are found in the plant metabolism studies. The need for a poultry feeding study will depend upon the results of a poultry metabolism study.

27/ The following data are required for tobacco: Residue data involving the metabolism of pendimethalin in tobacco using radiosotope techniques; and residue data involving pendimethalin metabolite(s) in or on green freshly-harvested tobacco. If residues exceed 0.1 ppm, additional data on pyrolysis products must be submitted.

28/ Refer to rice tolerance on page 14/ Data Tables.

TABLE A
GENERIC DATA REQUIREMENTS FOR PENDIMETHALIN

Data Requirement	Composition 1/	Use Pattern 2/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.130 Environmental Fate					
DEGRADATION STUDIES-LAB:					
161-1 - Hydrolysis	TGAI or PAIRA	A,B,C	Yes	00106777	No
Photodegradation					
161-2 - In water	TGAI or PAIRA	A,B,C	No	-	Yes 7/
161-3 - On soil	TGAI or PAIRA	A	No	-	Yes 7/
161-4 - In Air	TGAI or PAIRA	A	8/		
METABOLISM STUDIES-LAB:					
162-1 - Aerobic Soil	TGAI or PAIRA	A,B	No	-	Yes 6/
162-2 - Anaerobic Soil	TGAI or PAIRA	A	No	-	Yes 6/9/
162-3 - Anaerobic Aquatic	TGAI or PAIRA	C	No	-	Yes 6/10/
162-4 - Aerobic Aquatic	TGAI or PAIRA	C	No	-	Yes 6/11/
MOBILITY STUDIES:					
163-1 - Leaching and Adsorption/Desorption	TGAI or PAIRA	A,B,C	No		Yes 7/12/
163-2 - Volatility (Lab)	TEP	A	No	-	Yes 7/13/
163-3 - Volatility (Field)	TEP	A	No	-	Yes 7/14/

TABLE A
GENERIC DATA REQUIREMENTS FOR PENDIMETHALIN

Data Requirement	Composition 1/	Use Pattern 2/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.130 Environmental Fate (continued)					
DISSIPATION STUDIES-FIELD:					
164-1 - Soil	TEP	A,B	No	-	Yes 6/15/
164-2 - Aquatic (Sediment)	TEP	C	No	-	Yes 6/16/
164-3 - Forestry	TEP		22/		
164-4 - Combination and Tank Mixes	TEP		23/		
164-5 - Soil, Long-term	TEP	A,C	No	-	Yes 17/
ACCUMULATION STUDIES:					
165-1 - Rotational Crops (Confined)	PAIRA	A,C	No	-	Yes 5/18/
165-2 - Rotational Crops (Field)	TEP	A,C	No	-	Yes 4/19/
165-3 - Irrigated Crops	TEP	C	No	-	Yes 5/20/
165-4 - In Fish	TGAI or PAIRA	A,B,C	No	-	Yes 7/21/
165-5 - In Aquatic Non-Target Organisms	TEP		24/		
§ Subpart K- Reentry (158.140)	TEP		25/		

21 (17)

TABLE A
GENERIC DATA REQUIREMENTS FOR PENDIMETHALIN

§158.130 Environmental Fate
(continued)

1/ Composition: TGAI = Technical grade of the active ingredient; PAIRA = Pure active ingredient, radiolabelled; TEP = Typical end-use product.
2/ The use patterns are coded as follows: A=Terrestrial, Food Crop; B=Terrestrial, Non-Food; C=Aquatic, Food Crop; D=Aquatic, Non-Food; E=Greenhouse, Food Crop; F=Greenhouse, Non-Food; G=Forestry; H=Domestic Outdoor; I=Indoor.
3/ Data are required and must be submitted no later than April 30, 1989.
4/ Data are required and must be submitted no later than April 30, 1988.
5/ Data are required and must be submitted no later than October 30, 1987.
6/ Data are required and must be submitted no later than April 30, 1987.
7/ Data are required and must be submitted no later than October 30, 1985.
8/ This compound does not require photodegradation data in air.
9/ Not required if an anaerobic aquatic metabolism study is conducted.
10/ A metabolism test under anaerobic aquatic condition is required.
11/ A metabolism test under aerobic aquatic condition is required.
12/ A mobility study involving leaching and adsorption/desorption is required.
13/ A mobility study involving volatility in the lab is required.
14/ A mobility study involving volatility in the field is required.
15/ A soil dissipation study in the field is required.
16/ A dissipation study in aquatic (sediment) is required.
17/ A long term soil dissipation study in the field is contigent upon the results of studies under 162-1 and/or studies under 164-1 and 164-2.
18/ An accumulation study in rotational crops (confined) is required.
19/ An accumulation study in rotational crops (field) is required.
20/ An accumulation study in irrigated crops (field) is required.
21/ An accumulation study in fish is required.
22/ Since pendimethalin is not applied to forest areas, it does not require forestry dissipation data.
23/ Data on pendimethalin in combination and tank mixes are not required at the present time.
24/ Pending the results of other fate studies, an accumulation study in aquatic non-target organisms may be required.
25/ Because of its low toxicity category (III) pendimethalin does not require a re-entry interval.

TABLE A
GENERIC DATA REQUIREMENTS FOR PENDIMETHALIN

Data Requirement	Composition 1/	Use Patterns 2/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.135 Toxicology					
ACUTE TESTING:					
81-1 - Acute Oral Toxicity - Rat	TGAI	A,B	Yes	00026657, 00072802	No
81-2 - Acute Dermal Toxicity	TGAI	A,B	Yes	00026657, 00072802	No
81-3 - Acute Inhalation Toxicity Rat	TGAI	A,B	Yes	00073342	No
81-4 - Primary Eye Irritation	TGAI	A,B	Yes	00026657, 00072802	No
81-5 - Primary Skin Irritation	TGAI	A,B	Yes	00026663	No 6/
81-6 - Dermal Sensitization	TGAI	A,B	No	-	Yes 3/7/
81-7 - Acute Delayed Neurotoxicity - Hen	TGAI	A,B	13/		
SUBCHRONIC TESTING:					
82-1 - 90-Day Feeding - Rodent	TGAI	A,B	No	-	Yes 4/9/
Non-rodent (Dog)			Yes	00058657	No 8/
82-2 - 21-Day Dermal	TGAI	A,B	Yes	00026663	No
82-3 - 90-Day Dermal	TGAI	A,B	14/		
82-4 - 90-Day Inhalation - Rat	TGAI	A,B	14/		
82-5 - 90-Day Neurotoxicity - Hen/Mammal	TGAI	A,B	14/		

TABLE A
GENERIC DATA REQUIREMENTS FOR PENDIMETHALIN

Data Requirement	Composition 1/	Use Patterns 2/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.135 Toxicology (continued)					
CHRONIC TESTING:					
83-1 - Chronic Toxicity - Rodent	TGAI	A,B	No	-	Yes 5/10/
Non-rodent (Dog)			Yes	00058657	No
83-2 - Oncogenicity Study - 2 species: Rat and Mouse preferred	TGAI	A,B	No	-	Yes 5/11/
83-3 - Teratogenicity - Rat	TGAI	A,B	Yes	00025752	No
Rabbit			Yes	00117444	No
83-4 - Reproduction, 2-generation	TGAI	A,B	Yes	00040304	No
MUTAGENICITY TESTING					
84-2 - Gene Mutation	TGAI	A,B	Partially	00067519	Yes 3/12/
84-2 - Chromosomal Aberration	TGAI	A,B	Partially	00026673	Yes 3/12/
84-2 - Other Mechanisms of Mutagenicity	TGAI	A,B	No	-	Yes 3/12/

TABLE A
GENERIC DATA REQUIREMENTS FOR PENDIMETHALIN

Data Requirement	Composition 1/	Use Pattern 2/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)?	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.135 Toxicology (continued)					
SPECIAL TESTING					
85-1 - General Metabolism	PAI or PAIRA	A,B	Yes	00046275	No
85-2 - Dermal Absorption Study			15/		
SPECIAL REQUIREMENT					
86-1 - Domestic Animal Safety	Choice		14/		

TABLE A
GENERIC DATA REQUIREMENTS FOR PENDIMETHALIN

§158.135 Toxicology
(continued)

1/ Composition: TGAI = Technical grade of the active ingredient; PAI = Pure active ingredient; PAIRA = Pure active ingredient, radiolabeled; Choice = Choice of several test substances determined on a case-by-case basis.
2/ The use patterns are coded as follows: A=Terrestrial, Food Crop; B=Terrestrial, Non-Food; C=Aquatic, Food Crop; D=Aquatic, Non-Food; E=Greenhouse, Food Crop; F=Greenhouse, Non-Food; G=Forestry; H=Domestic Outdoor; I=Indoor.
3/ Data are required and must be submitted no later than October 30, 1985.
4/ Data are required and must be submitted no later than January 30, 1986.
5/ Data are required and must be submitted no later than April 30, 1989.
6/ A 21-day subacute dermal study in the rabbit is being used to satisfy this acute toxicity requirement.
7/ A dermal sensitization study in the guinea pig is required.
8/ The chronic dog study satisfies the requirement for a subchronic dog study.
9/ A 90-day feeding study in the rat is required because the previous 90-day study was inadequate.
10/ A chronic toxicity study in rat is required because the previous 2-year study was reviewed by the Agency and declared invalid.
11/ An oncogenicity study in both rat and in mouse is required because the previous oncogenicity studies on the rat and mouse were reviewed by the Agency and declared invalid.
12/ The following mutagenicity data are required:
  a. Gene mutation in bacteria,
  b. Gene mutation in mammalian cells in culture,
  c. Chromosome aberration analysis in mammalian cells in culture, and
  d. DNA damage in mammalian cells in culture.
13/ Since pendimethalin is not a cholinesterase inhibitor and does not otherwise indicate neurotoxicity, this data is not required.
14/ The guidelines and uses generally indicate that this data is not required.
15/ The Agency has the option to request this type of study.

TABLE A
GENERIC DATA REQUIREMENTS FOR PENDIMETHALIN

Data Requirement	Composition 1/	Use 2/ Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.145 Wildlife and Aquatic Organisms					
AVIAN AND MAMMALIAN TESTING					
71-1 - Acute Avian Oral Toxicity	TGAI	A,B,C	Yes	00059739	No
71-2 - Acute Avian Dietary Toxicity					
a) Upland gamebird	TGAI	A,B	Yes	00026674	No
b) Waterfowl	TGAI	A,B	Yes	00026675	No
71-3 - Wild Mammal Toxicity	TGAI	A,B	8/		
71-4 - Avian Reproduction	TGAI	A,B	8/		
71-5 - Simulated and Actual Field Testing - Mammals and Birds	TEP	A,B	8/		
AQUATIC ORGANISM TESTING					
72-1 - Acute Freshwater Fish Toxicity					
a) Warmwater	TGAI	A,B,C	Yes	00106764	No
	TEP	C	Yes	00037927 00131773	No
b) Coldwater	TGAI	A,B,C	Yes	00106764	No
	TEP	C	Yes	00037927	No

TABLE A
GENERIC DATA REQUIREMENTS FOR PENDIMETHALIN

Data Requirement	Composition 1/	Use 2/ Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.145 Wildlife and Aquatic Organisms (continued)					
72-2 - Acute Freshwater Invertebrate Toxicity	TGAI	A,B,C	Yes	00071123 00059738	No
	TEP	C	No	-	Yes 3/
72-3 - Acute Toxicity Estuarine and Marine Organisms					
a) Oyster	TGAI	A,C	Yes	00131772	No
	TEP	A,C	Yes	00131772	No 4/
b) Shrimp	TGAI	A,C	Yes	00131775	No
	TEP	A,C	Yes	00131775	No 4/
c) Marine Fish	TGAI	A,C	Yes	00131774	No
	TEP	A,C	Yes	00131774	No 4/
72-4 - Aquatic Invertebrate Life-Cycle	TGAI	A,C	Yes	00100504	No 4/
72-5 - Fish - Life-Cycle	TGAI	A,C	Yes	00037940	No 4/
72-6 - Aquatic Organism Accumulation	TGAI	A,C	No	-	Yes 4/
72-7 - Aquatic Field Study	TEP	C 5/	No	-	Yes 3/

TABLE A
GENERIC DATA REQUIREMENTS FOR PENDIMETHALIN

Data Requirement	Composition 1/	Use 2/ Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.155 Nontarget Insect					
NONTARGET INSECT TESTING - POLLINATORS:					
141-1 - Honey bee acute contact toxicity	TGAI	A,B	Yes	00099890	No
141-2 - Honey bee - toxicity of residues on foliage	TEP	A,B	9/		
141-4 - Honey bee subacute feeding study	[Reserved] 6/				
141-5 - Field testing for pollinators	TEP	A,B	9/		

TABLE A
GENERIC DATA REQUIREMENTS FOR PENDIMETHALIN

Data Requirement	Composition 1/	Use 2/ Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.155 Nontarget Insect (continued)					
NONTARGET INSECT TESTING - AQUATIC INSECTS:					
142-1 - Acute toxicity to aquatic insects	(Reserved)7/				
142-2 - Aquatic insect life-cycle study	(Reserved)7/				
142-3 - Simulated or actual field testing for aquatic insects	(Reserved)7/				
143-1 thru 143-3 - NONTARGET INSECT TESTING - PREDATORS AND PARASITES	(Reserved)7/				

TABLE A
GENERIC DATA REQUIREMENTS FOR PENDIMETHALIN

§158.145 Wildlife and Aquatic Organisms
(continued)

1/ Composition: TGAI = Technical grade of the active ingredient; PAI = pure active ingredient; TEP = Typical end-use product;
2/ The use patterns are coded as follows: A=Terrestrial, Food Crop; B=Terrestrial, Non-Food Crop; C=Aquatic, Food Crop; D=Aquatic, Non-Food; E=Greenhouse, Food Crop; F=Greenhouse, Non-Food; G=Forestry; H=Domestic Outdoor; I=Indoor.
3/ This study is required to support the rice use, and must be submitted by October 30, 1985.
4/ Requirement pending receipt and review of environmental fate data in conjunction with such uses as corn, soybeans and cotton.
5/ This study will monitor residues in aquatic sites next to rice fields, and must be submitted by April 30, 1987.
6/ Reserved pending development of test methodology.
7/ Reserved pending Agencys' decision as to whether data requirement should be established.
8/ The low avian and mammalian toxicity data for pendimethalin indicate that these data are not required.
9/ No additional data required because the data shows pendimethalin to be non-toxic to bees.

TABLE B
PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING PENIDMETHALIN (90% A.I.)

Data Requirement	1/ Composition	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.120 Product Chemistry				
Product Identity:				
61-1 - Identity of Ingredients	MP	Yes	00106751	No
61-2 - Statement of Composition	MP	Partially	00106751	Yes 3/5/
61-3 - Discussion of Formation of Ingredients	MP	No		Yes 3/6/
Analysis and Certification of Product Ingredients				
62-1 - Preliminary Analysis	MP	Partially	00046347	Yes 2/7/
62-2 - Certification of Limits	MP	Partially	00046347	Yes 2/8/
62-3 - Analytical Methods for Enforcement of Limits	MP	Partially	00106751	Yes 3/9/
Physical and Chemical Characteristics				
63-2 - Color	MP	Yes	GS0187-001	No
63-3 - Physical State	MP	Yes	GS0187-001	No
63-4 - Odor	MP	Yes	GS0187-001	No
63-5 - Melting Point	MP	Yes	GS0187-001	No
63-6 - Boiling Point	MP	Yes	GS0187-001	No
63-7 - Density, Bulk Density, or Specific Gravity	MP	Yes	GS0187-001	No

TABLE B
PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING PENDIMETHALIN

Data Requirement	Composition 1/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.120 Product Chemistry (continued)				
63-12 - pH	MP	No	-	Yes 2/
63-14 - Oxidizing or Reducing Action	MP	No	-	Yes 2/
63-15 - Flammability	MP	No	-	Yes 2/
63-16 - Explodability	MP	No	-	Yes 2/
63-17 - Storage Stability	MP	No	-	Yes 4/10/
63-18 - Viscosity	MP	No	-	Yes 2/
63-19 - Miscibility	MP	No	-	Yes 2/
Other Requirements:				
64- 1 - Submittal of samples	Choice	11/		

TABLE B
PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING PENDIMETHALIN

§158.120 Product Chemistry
(continued)

1/ Composition: MP = Manufacturing-use product; Choice = Choice of several test substances determined on a case-by-case basis.
2/ Data are required and must be submitted no later than October 30, 1985.
3/ Data are required and must be submitted no later than April 30, 1986.
4/ Data are required and must be submitted no later than July 30, 1986.
5/ The name and address of the manufacturer or producer of each starting material used in the 90% technical product is required.
6/ A discussion of each impurity believed to be present at >0.1% based on the beginning materials, all chemical reactions and any contamination.
7/ Five or more samples must be analyzed for the active ingredient (A.I.) and each impurity present for which a certified limit is required.
8/ A current Confidential Statement of Formula must be submitted.
9/ Quantitative methods to determine the remaining impurities in the technical product are required.
10/ The following data are required for chemical stability: discussion of sensitivity of the A.I. to metal and metal ions, stability of the A.I. at normal and elevated temperatures, and the sensitivity of the A.I. to sunlight.
11/ This compound does not require the submittal of samples.

TABLE B
PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING PENDIMETHALIN

Data Requirement	Composition 1/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.135 Toxicology				
ACUTE TESTING				
81-1 - Acute Oral Toxicity - Rat	MP	Yes	00026657, 00072802	No
81-2 - Acute Dermal Toxicity	MP	Yes	00026657, 00072802	No
81-3 - Acute Inhalation Toxicity Rat	MP	Yes	00073342	No
81-4 - Primary Eye Irritation	MP	Yes	00026657, 00072802	No
81-5 - Primary Skin Irritation	MP	Yes	00026663	No 3/
81-6 - Dermal Sensitization	MP	No	-	Yes 4/2/
81-7 - Acute Delayed Neurotoxicity - Hen	MP	5/		

TABLE B
PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING PENDIMETHALIN

§158.135 Toxicology
(continued)

1/ Composition: MP = Manufacturing-use product.
2/ Data are required and must be submitted no later than October 30, 1985.
3/ A 21-day subacute dermal study in the rabbit is being used to satisfy this acute toxicity requirement.
4/ A dermal sensitization study in the guinea pig is required.
5/ Since pendimethalin is not a cholinesterase inhibitor or otherwise indicates neurotoxicity, these data are not required.

The extension request should state the reasons why you believe that an extension is appropriate. While EPA considers your request, you must strive to meet the deadline for submitting the required data.

III. REQUIREMENT FOR SUBMISSION OF PRODUCT-SPECIFIC DATA

Note: Unless stated otherwise in Section I, Regulatory Position and Rationale, this Section applies only to manufacturing use products, not to end use products.

A necessary first step in determining which statements must appear on your product's label is the completion and submission to EPA of product-specific data* listed on the form entitled "Product Specific Data Report" (EPA Form 8580-4, Appendix III-1) to fill "gaps" identified by EPA concerning your product. Under the authority of FIFRA sec. 3(c)(2)(B), EPA has determined that you must submit these data to EPA in order to reregister your product(s). All of these data must be submitted not later than six months after you receive this guidance document.

Table B--Product-Specific Data Requirements for Manufacturing Use Products--lists the product specific data you must submit. Data that are required to be submitted are identified in the column of those tables entitled "Must Data By Submitted Under §3(c)(2)(B)."

IV. SUBMISSION OF REVISED LABELING

Note: This section applies to end use products only to the extent described in Section I (Regulatory Position and Rationale). Otherwise, the following information pertains exclusively to manufacturing use products.

FIFRA requires each product to be labeled with accurate, complete and sufficient instructions and precautions, reflecting the results of data concerning the product and its ingredients. Labeling requirements are set out in 40 CFR 162.10 (see Appendix IV-1) and are summarized for products containing this active ingredient as part of this Guidance Document (See Appendix IV-2). Applications submitted in response to this notice must include draft labeling for Agency review.

---

*/ Product specific data pertain to data that support the formulation which is marketed; it usually includes product chemistry data and acute toxicity data.

If you fail to submit revised labeling information complying with this section (supplemented by requirements described in Section I, Regulatory Position and Rationale), EPA may issue a notice of intent to cancel the registration under FIFRA sec. 6(b)(1).

A. Label Contents

40 CFR 162.10 requires that certain specific labeling statements appear at certain locations on the label. This is referred to as format labeling. Specific label items listed below are keyed to Appendix IV-2.

Item 1. PRODUCT NAME - The name, brand or trademark is required to be located on the front panel, preferably centered in the upper part of the panel. The name of a product will not be accepted if it is false or misleading.

Item 2. COMPANY NAME AND ADDRESS - The name and address of the registrant or distributor is required on the label. The name and address should preferably be located at the bottom of the front panel or at the end of the label text.

Item 3. NET CONTENTS - A net contents statement is required on all labels or on the container of the pesticide. The preferred location is the bottom of the front panel immediately above the company name and address, or at the end of the label text. The net contents must be expressed in the largest suitable unit, e.g., "1 pound 10 ounces" rather than "26 ounces." In addition to English units, net contents may be expressed in metric units. See Appendix IV-1. [40 CFR 162.10(d)]

Item 4. EPA REGISTRATION NUMBER - The registration number assigned to the pesticide product must appear on the label, preceded by the phrase "EPA Registration No.," or "EPA Reg. No." The registration number must be set in type of a size and style similar to other print on that part of the label on which it appears and must run parallel to it. The registration number and the required identifying phrase must not appear in such a manner as to suggest or imply recommendation or endorsement of the product by the Agency. See Appendix IV-1. [40 CFR 162.10(e)]

Item 5. EPA ESTABLISHMENT NUMBER - The EPA establishment number, preceded by the phrase "EPA Est." is the final establishment at which the product was produced, and may appear in any suitable location on the label or immediate container. It must also appear on the wrapper or outside container of the package if the EPA establishment number on the immediate container cannot be clearly read through such wrapper or container. See Appendix IV-1. [40 CFR 162.10(f)]

Item 6. INGREDIENTS STATEMENT - An ingredients statement is required on the front panel. The ingredients statement must contain the name and percentage by weight of each active ingredient and the total percentage by weight of all inert ingredients. The preferred location is immediately below the product name. The ingredients statement must run parallel with, and be clearly distinguished from, other text on the panel. It must not be placed in the body of other text. See Appendix IV-1. [40 CFR 162.10(g)]

Item 6A. POUNDS PER GALLON STATEMENT - For liquid agricultural formulations, the pounds per gallon of active ingredient must be indicated on the label.

Item 7. FRONT LABEL PRECAUTIONARY STATEMENTS - Front panel precautionary statements must be grouped together, preferably within a block outline. The table below shows the minimum type size requirements for various size labels.

Size of Label on Front Panel in Square Inches	Signal Word Minimum Type Size All Capitals	"Keep Out of Reach of Children" Minimum Type Size
5 and under	6 point	6 point
above 5 to 10	10 point	6 point
above 10 to 15	12 point	8 point
above 15 to 30	14 point	10 point
over 30	18 point	12 point

Item 7A. CHILD HAZARD WARNING STATEMENT - The statement "Keep Out of Reach of Children" must be located on the front panel above the signal word except where contact with children during distribution or use is unlikely. See Appendix IV-1. [40 CFR 162.10(h)(1)(ii)]

Item 7B. SIGNAL WORD - The signal word (DANGER, WARNING, or CAUTION) is required on the front panel immediately below the child hazard warning statement. See Appendix IV-1. [40 CFR 162.10 (h)(1)(i)]

Item 7C. SKULL & CROSSBONES AND WORD "POISON" - On products assigned a toxicity Category I on the basis of oral, dermal, or inhalation toxicity, the word "Poison" shall appear on the label in red on a background of distinctly contrasting color and the skull and crossbones shall appear in immediate proximity to the word POISON. See Appendix IV-1. [40 CFR 162.10(h)(1)(i)]

Item 7D. STATEMENT OF PRACTICAL TREATMENT - A statement of practical treatment (first aid or other) shall appear on the label of pesticide products in toxicity Categories I, II, and III. See Appendix IV-1. [40 CFR 162.10(h)(1)(iii)]

Item 7E. REFERRAL STATEMENT - The statement "See Side (or Back) Panel for Additional Precautionary Statements" is required on the front panel for all products, unless all required precautionary statements appear on the front panel. See Appendix IV-1. [40 CFR 162.10(h)(1)(iii)]

Item 8. SIDE/BACK PANEL PRECAUTIONARY LABELING - The precautionary statements listed below must appear together on the label under the heading "PRECAUTIONARY STATEMENTS." The preferred location is at the top of the side or back panel preceding the directions for use, and it is preferred that these statements be surrounded by a block outline. Each of the three hazard warning statements must be headed by the appropriate hazard title. See Appendix IV-1. [40 CFR 162.10 (h)(2)].

Item 8A. HAZARD TO HUMANS AND DOMESTIC ANIMALS - Where a hazard exists to humans or domestic animals, precautionary statements are required indicating the particular hazard, the route(s) of exposure and the precautions to be taken to avoid accident, injury or damage. See Appendix IV-1. [40 CFR 162.10 (h)(2)(i)]

Item 8B. ENVIRONMENTAL HAZARD - Where a hazard exists to non-target organisms excluding humans and domestic animals, precautionary statements are required stating the nature of the hazard and the appropriate precautions to avoid potential accident, injury, or damage. See Appendix IV-1. [40 CFR 162.10(h)(2)(ii)]

Item 8C. PHYSICAL OR CHEMICAL HAZARD

1. Flammability statement. Precautionary statements relating to flammability of a product are required to appear on the label if it meets the criteria in Appendix IV-3. The requirement is based on the results of the flashpoint determinations and flame extension tests required to be submitted for all products. These statements are to be located in the side/back panel precautionary statements section, preceded by the heading "Physical/Chemical Hazards." Note that no signal word is used in conjunction with the flammability statements.

2. Criteria for declaration of non-flammability. The following criteria will be used to determine if a product is non-flammable:

a. A "non-flammable gas" is a gas (or mixture of gases) that will not ignite when a lighted match is placed against the open cylinder valve.

b. A "non-flammable liquid" is one having a flashpoint greater than 350°F (177°C).

c. A "non-flammable aerosol" is one which meets the following criteria:

i. The flame extension is zero inches;

ii. There is no flashback; and

iii. The flashpoint of the non-volatile liquid component is greater than 350°F (177°C).

3. Declaration of non-flammability. Products which meet the criteria for non-flammability specified above may bear the notation "non-flammable" or "non-flammable (gas, liquid, etc.)" on the label. It may appear as a substatement to the ingredients statement, or on a back or side panel, but shall not be highlighted or emphasized (as with an inordinately large type size) in any way that may detract from precaution.

4. Other physical/chemical hazard statements. When chemistry data demonstrate hazards of a physical or chemical nature other than flammability, appropriate statements of hazard will be prescribed. Such statements may address hazards of explosivity, oxidizing or reducing capability, or mixing with other substances to produce toxic fumes.

Item 9A. RESTRICTED USE CLASSIFICATION - FIFRA sec. 3(d) requires that all pesticide formulations/uses be classified for either general or restricted use. Products classified for restricted use may be limited to use by certified applicators or persons under their direct supervision (or may be subject to other restrictions that may be imposed by regulation).

In the Registration Standard, the Agency has (1) indicated certain formulations/uses are to be restricted (Section I indicates why the product has been classified for restricted use); or (2) reserved any classification decision until appropriate data are submitted.

The Regulatory Position and Rationale states whether products containing this active ingredient are classified for restricted use. If they are restricted the draft label(s) submitted to the Agency as part of your application must reflect this determination (see below).

If you do not believe that your product should be classified for restricted use, you must submit any information and rationale with your application for reregistration. During the Agency's review of your application, your proposed classification determination will be evaluated in accordance with the provisions of 40 CFR 162.11(c). You will be notified of the Agency's classification decision.

A. Classification Labeling Requirements

If Section I of this Guidance Document indicates that your product has been classified for restricted use, the following label requirements apply:

1. Front panel statement of restricted use classification.

   a. The statement "Restricted Use Pesticide" must appear at the top of the front panel of the label. The statement must be set in type of the same minimum size as required for human hazard signal word (see table in 40 CFR 162.10(h)(1)(iv)

   b. Directly below this statement on the front panel, a summary statement of the terms of restriction must appear (including the reasons for restriction if specified in Section I). If use is restricted to certified applicators, the following statement is required: "For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's Certification."

2. Some but not all uses restricted. If the Regulatory Position and Rationale states that some uses are classified for restricted use, and some are unclassified, several courses of action are available:

   a. You may label the product for Restricted use. If you do so, you may include on the label uses that are unrestricted, but you may not distinguish them on the label as being unrestricted.

   b. You may delete all restricted uses from your label and submit draft labeling bearing only unrestricted uses.

   c. You may "split" your registration, i.e., register two separate products with identical formulations, one bearing only unrestricted uses, and the other bearing restricted uses. To do so, submit two applications for reregistration, each containing all forms and necessary labels. Both applications should be submitted simultaneously. Note that the products will be assigned separate registration numbers.

B. Compliance Schedules

No product with a use classified for restricted use under this Standard may be released for shipment by the registrant or producer after one year from the date of issuance of this Standard, unless such product bears the restricted use classification. All products still in channels of trade after two years from the date of issuance of this Standard must be labeled for restricted use.

Item 9B. [There is no Item 9B].

Item 9C. MISUSE STATEMENT - All products must bear the misuse statement, "It is a violation of Federal law to use this product in a manner inconsistent with its labeling." This statement appears at the beginning of the directions for use, directly beneath the heading of that section.

Item 10A. REENTRY STATEMENT - If a reentry interval has been established by the Agency, it must be included on the label. Additional worker protection statements may be required in accordance with PR Notice 83-2, March 29, 1983.

Item 10B. [There is no Item 10B].

Item 10C. STORAGE AND DISPOSAL BLOCK - All labels are required to bear storage and disposal statements. These statements are developed for specific containers, sizes, and chemical content. These instructions must be grouped and appear under the heading "Storage and Disposal" in the directions for use. This heading must be set in the same type sizes as required for the child hazard warning. Refer to Appendix IV-4 to determine the disposal instructions appropriate for your products.

Item 10D. DIRECTIONS FOR USE - Directions for use must be stated in terms which can be easily read and understood by the average person likely to use or to supervise the use of the pesticide. When followed, directions must be adequate to protect the public from fraud and from personal injury and to prevent unreasonable adverse effects on the environment. See Appendix IV-1. [40 CFR 162.10]

B. Collateral Labeling

Bulletins, leaflets, circulars, brochures, data sheets, flyers, or other graphic printed matter which is referred to on the label or which is to accompany the product are termed collateral labeling. Such labeling may not bear claims or representations that differ in substance from those accepted in connection with registration of the product. It should be made part of the response to this notice and submitted for review.

V. INSTRUCTIONS FOR SUBMISSION

All applications prepared in response to this Notice should be addressed as follows:

Robert J. Taylor
Registration Division (TS-767C)
Office of Pesticide Programs
Environmental Protection Agency
Washington, D.C. 20460
Phone No. (703)557-1800

A. For Manufacturing Products (MP) containing (Pendimethalin as an active ingredient.

1. Within 90 days from receipt of this document, you must submit the "FIFRA Section 3(c)(2)(B) Summary Sheet" EPA Form 8580-1. Refer to Appendix II-3 with appropriate attachments.

2. Within 6 months from receipt of this document you must submit:

a. Confidential Statement of Formula, EPA Form 8570-4.

b. Product Specific Data Report, EPA Form 8580-4 (Appendix III-1).

c. Two copies of any required product-specific data.

d. Two copies of draft labeling, including the label and associated brochures. If current labeling conforms to the requirements of this guidance document and the results of the short-term data, you may submit such labeling. End use product labeling must comply specifically with the instructions in Section I (Regulatory Position and Rationale) of this guidance document. The labeling should be either typewritten text on 8-1/2 x 11 inch paper or a mockup of the labeling suitable for storage in 8-1/2 x 11 inch files. The draft label must indicate the intended colors of the final label, clear indication of the front panel label, and the intended type sizes of the text.

e. Evidence of compliance with data support requirements of FIFRA sec. 3(c)(1)(D). Refer to PR Notice 84-4 (enclosed) for latest requirements.

3. Within the times set forth in Table A, all generic data must be submitted.

Note: If for any reason any required test is delayed or aborted so that the agreed schedule cannot be met, notify the Product Manager.

B. For Manufacturing Use Products containing (Pendimethalin) in combination with other active ingredients

1. Within 90 days from receipt of this document, you must submit the "FIFRA Section 3(c)(2)(B) Summary Sheet," EPA Form 8580-1. Refer to Appendix II-3 with appropriate attachments.

2. Within the times set forth in Table A, all generic data must be submitted.

Note: If for any reason any required test is delayed or aborted so that the agreed schedule cannot be met, notify the Product Manager.

C. For End Use Products containing (name of pesticide) alone or in combination with other active ingredients:

1. Within 90 days from receipt of this document, you must submit the "FIFRA Section 3(c)(2)(B) Summary Sheet," EPA Form 8580-1. Refer to Appendix II-3 with appropriate attachments.

2. Within 6 months from receipt of this document you must submit:

a. Confidential Statement of Formula, EPA Form 8570-4.

b. Product-Specific Data Report, EPA Form 8580-4 (Appendix III-1).

c. Two copies of any required product-specific data. (Refer to Table C).

d. Two copies of draft labeling, including the label and associated brochures. If current labeling conforms to the requirements of this guidance document and the results of the short-term data, you may submit such labeling. End use product labeling must comply specifically with the instructions in Section I (Regulatory Position and Rationale) of this guidance document. Labeling should be either typewritten text on 8 1/2 x 11 inch paper or a mockup of the labeling suitable for storage in 8 1/2 inch files. The draft label must indicate the intended colors of the final label, clear indication of the front panel label, and the intended type sizes of the text.

e. Evidence of compliance with data support requirements of FIFRA sec. 3(c)(1)(D). Refer to PR Notice 84-4 (enclosed) for latest requirements.

3. For those end use product registration that are not eligible for the formulator's exemption, submit all generic data within the time set forth in Table A.

D. For intrastate products containing (Pendimethalin) either as the sole active ingredient or in combination with other active ingredients.

These products are being called in for full Federal registration. Producers of these products are being sent a letter instructing them how to submit an application for registration.

Guide to Use of This Bibliography

1. CONTENT OF BIBLIOGRAPHY. This bibliography contains citations of all studies considered relevant by EPA in arriving at the positions and conclusions stated elsewhere in the Standard. Primary sources for studies in this bibliography have been the body of data submitted to EPA and its predecessor agencies in support of past regulatory decisions. Selections from other sources including the published literature, in those instances where they have been considered, will be included.

2. UNITS OF ENTRY. The unit of entry in this bibliography is called a "study." In the case of published materials, this corresponds closely to an article. In the case of unpublished materials submitted to the Agency, the Agency has sought to identify documents at a level parallel to the published article from within the typically larger volumes in which they were submitted. The resulting "studies" generally have a distinct title (or at least a single subject), can stand alone for purposes of review, and can be described with a conventional bibliographic citation. The Agency has attempted also to unite basic documents and commentaries upon them, treating them as a single study.

3. IDENTIFICATION OF ENTRIES. The entries in this bibliography are sorted numerically by "Master Record Identifier," or MRID, number. This number is unique to the citation, and should be used at any time specific reference is required. It is not related to the six-digit "Accession Number" which has been used to identify volumes of submitted studies; see paragraph 4(d)(4) below for a further explanation. In a few cases, entries added to the bibliography late in the review may be preceded by a nine-character temporary identifier. These entries are listed after all MRID entries. This temporary identifier number is also to be used whenever specific reference is needed.

4. FORM OF ENTRY. In addition to the Master Record Identifier (MRID), each entry consists of a citation containing standard elements followed, in the case of material submitted to EPA, by a description of the earliest known submission. Bibliographic conventions used reflect the standards of the American National Standards Institute (ANSI), expanded to provide for certain special needs.

a. Author. Whenever the Agency could confidently identify one, the Agency has chosen to show a personal author. When no individual was identified, the Agency has shown an identifiable laboratory or testing facility as author. As a last resort, the Agency has shown the first submitter as author.

b. Document Date. When the date appears as four digits with no question marks, the Agency took it directly from the document. When a four-digit date is followed by a question mark, the bibliographer deduced the date from evidence in the document. When the date appears as (19??), the Agency was unable to determine or estimate the date of the document.

c. Title. In some cases, it has been necessary for Agency bibliographers to create or enhance a document title. Any such editorial insertions are contained between square brackets.

d. Trailing Parentheses. For studies submitted to the Agency in the past, the trailing parentheses include (in addition to any self-explanatory text) the following elements describing the earliest known submission:

(1) Submission Date. The date of the earliest known submission appears immediately following the word "received."

(2) Administrative Number. The next element, immediately following the word "under," is the registration number, experimental use permit number, petition number, or other administrative number associated with the earliest known submission.

(3) Submitter. The third element is the submitter, following the phrase "submitted by." When authorship is defaulted to the submitter, this element is omitted.

(4) Volume Identification (Accession Numbers). The final element in the trailing parentheses identifies the EPA accession number of the volume in which the original submission of the study appears. The six-digit accession number follows the symbol "CDL," standing for "Company Data Library." This accession number is in turn followed by an alphabetic suffix which shows the relative position of the study within the volume. For example, within accession number 123456, the first study would be 123456-A; the second, 123456-B; the 26th, 123456-Z; and the 27th, 123456-AA.

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION STANDARD BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registrations Under the Pendimethalin Standard (108501)

00018997 Smith, J.; Lignowski, E.; Coble, H.D.; et al. (1978) Summary: Prowl (CL 92,553) plus Cotoran (Fluometuron) Preemergence Tank Mixture--Soil and Cottonseed Residues. (Unpublished study received Sep 11, 1978 under 241-243; prepared in cooperation with North Carolina State Univ., Crop Science Dept., Upper Coastal Plain Research Station, submitted by American Cyanamid Co., Princeton, N.J.; CDL:235084-B)

00019004 Boughton, P. (1974) CL 92,553: Determination of N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine in Cottonseed Meal. Method M-524 dated Jun 28, 1974. (Unpublished study received Sep 12, 1978 under 241-243; submitted by American Cyanamid Co., Princeton, N.J.; CDL:235084-I)

00023780 Wyckoff, J.C.; Tondreau, R.E. (1974) Prowl (CL 92,553): The Gas Chromatographic Determination of CL 92,553...and CL 202,347... Residues in Corn (Foliage), Soybean (Foliage) and Wheat (Foliage) and CL 92,553 in Soil: Report No. C-454. Summary of studies 094474-C through 094474-E. (Unpublished study received Sep 27, 1974 under 5F1556; submitted by American Cyanamid Co., Princeton, N.J.; CDL:094474-B)

00023781 Wyckoff, J.C. (19??) CL 92,553: Determination of N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzamine in Corn Plants. Undated method M-458.1. (Unpublished study received Sep 27, 1974 under 5F1556; submitted by American Cyanamid Co., Princeton, N.J.; CDL:094474-C)

00023782 Wyckoff, J. (1974) CL 92,553: Determination of N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine in Corn Grain. Undated method M-465.1. (Unpublished study received Sep 27, 1974 under 5F1556; submitted by American Cyanamid Co., Princeton, N.J.; CDL:094474-E)

00023786 Wyckoff, J.C.; Bodnarchuk, D.; Potts, C.; et al. (1974) Prowl (CL 92,553): Determination of CL 92,553...and CL 202,347...Residue in Field Corn Tissues (Grain and Forage): Report No. C-457. (Unpublished study received Sep 27, 1974 under 5F1556; submitted by American Cyanamid Co., Princeton, N.J.; CDL:094474-K)

00023787 Wyckoff, J.C.; Bodnarchuk, D.; Potts, C.; et al. (1974) Prowl (CL 92,553): Determination of CL 92,553...and CL 202,347...Residue in Field Corn Tissues (Grain and Forage): Report No. C-459. (Unpublished study received Sep 27, 1974 under 5F1556; submitted by American Cyanamid Co., Princeton, N.J.; CDL:094474-L)

00023788 Bodnarchuk; Wyckoff, J.C.; Nzewi, G.I. (1974) Prowl (CL 92,553): Determination of CL 92,553...and CL 202,347...Residues in Field Corn Tissues: Report No. C-450. (Unpublished study received Sep 27, 1974 under 5F1556; submitted by American Cyanamid Co., Princeton, N.J.; CDL:094474-M)

00023789 Wyckoff, J.; Bodnarchuk, D.; Moyer, M., et al. (1974) Prowl (CL 92,553): Determination of CL 92,553..., CL 202, 347..., Atrazine...and Bladex...Residues in Corn Tissues: Report No. C-456. (Unpublished study received Sep 27, 1974 under 5F1556; submitted by American Cyanamid Co., Princeton, N.J.; CDL:094474-N)

00023790 Wyckoff, J.C.; Bodnarchuk, D.; Nzewi, G.I. (1974) Prowl (CL 92,553): Determination of CL 92,553..., CL 202,347..., Atrazine...and Bladex...Residues in Field Corn Tissues: Report No. C-460. (Unpublished study received Sep 27, 1974 under 5F1556; submitted by American Cyanamid Co., Princeton, N.J.; CDL:094474-O)

00023791 Moyer, M.; Potts, C.; Bodnarchuk, D.; et al. (1974) Prowl (CL 92,553): Determination of CL 92,553..., CL 202,347..., and Atrazine...and Bladex...Residues in Field Corn Tissues: Report No. C-461. (Unpublished study received Sep 27, 1974 under 5F1556; submitted by American Cyanamid Co., Princeton, N.J.; CDL:094474-P)

00023792 Moyer, M.; Potts, C.; Wyckoff, J.C.; et al. (1974) Prowl (CL 92,553): Determination of CL 92,553..., CL 202,347..., Atrazine...Residues in Field Corn Tissues: Report No. C-463. (Unpublished study received Sep 27, 1974 under 5F1556; submitted by American Cyanamid Co., Princeton, N.J.; CDL:094474-Q)

00023793 Moyer, M.; Potts, C.; Wyckoff, J.C.; et al. (1974) Prowl (CL 92,553): Determination of CL 92,553..., CL 202,347..., Atrazine...and Bladex...Residues in Field Corn Tissues: Report No. C-464. (Unpublished study received Sep 27, 1974 under 5F1556; submitted by American Cyanamid Co., Princeton, N.J.; CDL:094474-R)

00023794 Wyckoff, J.C.; Moyer, M.; Potts, C.; et al. (1974) Prowl (CL 92,553): Determination of CL 92,553..., CL 202,347..., Atrazine...and Bladex...Residues in Field Corn Tissues: Report No. C-465. (Unpublished study received Sep 27, 1974 under 5F1556; submitted by American Cyanamid Co., Princeton, N.J.; CDL:094474-S)

00023795 Wyckoff, J.C.: Bodnarchuk, D.: Moyer, M.: et al. (1974) Prowl (CL 92,553): Determination of CL 92,553..., CL 202,347..., Atrazine...and Bladex...Residues in Field Corn Tissues: Report No. C-466. (Unpublished study received Sep 27, 1974 under 5F1556: submitted by American Cyanamid Co., Princeton, N.J.: CDL:094474-T)

00023796 Tondreau, R.E. (1973) CL 92,553: Determination of N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine Residues in Milk: Report No. C-384. (Unpublished study received Sept. 27, 1974 under 5F1556: submitted by American Cyanamid Co., Princeton, N.J.: CDL:094474-U)

00024823 Fink, R. (1975) Final Report: 21-Day Cataract Evaluation Study in the Mallard Duck Using Technical Butralin: Project No. 113-111. (Unpublished study including unofficial analytical report, received Nov 17, 1975 under 264-297: prepared by Truslow Farms, Inc., submitted by Union Carbide Agricultural Products Co., Ambler, Pa.: CDL:225999-A)

00025752 Wolfe, G.W.: Mistrettal, L.H.: Kapp, R.W., Jr. (1979) Oral Teratology Study in Rats: AC 92,553: Final Report: Project No. 362-155. Includes methods M-830 dated Nov 18, 1977 and C-1648 dated Dec 13, 1979. (Unpublished study including appendix by submitter, received Jan 14, 1980 under 241-243: prepared in cooperation with Hazleton Laboratories America, Inc., submitted by American Cyanamid Co., Princeton, N.J.: CDL:241595-A)

00025818 Boughton, P.J.: Moyer, M.: Kust, C.A.: et al. (1976) Residues of Prowl Herbicide and Its Metabolite in Cotton and Soybeans. (Unpublished study received Feb 13, 1980 under 241-243: prepared in cooperation with Univ. of North Carolina and others, submitted by American Cyanamid Co., Princeton, N.J.: CDL:241781-A)

00025820 Wyckoff, J.C. (1974) CL 92,553: Determination of N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine in Soybean Plants. Method M-483.1 dated Jul 23, 1974. (Unpublished study received Feb 13, 1980 under 241-243: submitted by American Cyanamid Co., Princeton, N.J.: CDL:241781-C)

00025821 Bohn, W.R. (1974) CL 92, 553: Determination of N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine in Soybean Seed. Method M-533 dated Jul 30, 1974. (Unpublished study received Feb 13, 1980 under 241-243; submitted by American Cyanamid Co., Princeton, N.J.: CDL:241781-D)

00025822 Boughton, P.J. (1974) CL 92,553: Determination of N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine in Soybean Green Seed. Method M-560 dated Nov 12, 1974. (Unpublished study received Feb 13, 1980 under 241-243; submitted by American Cyanamid Co., Princeton, N.J.; CDL:241781-E)

00025827 Bohn, W.R. (1974) CL 202,347: Determination of 4- (1-Ethylpropyl) amino-2-methyl-3,5-dinitro-benzyl alcohol in Soybean Seed. Method M-536 dated Aug 6, 1974. (Unpublished study received Feb 13, 1980 under 241-243; submitted by American Cyanamid Co., Princeton, N.J.; CDL:241781-K)

00025828 Boughton, P. (1975) CL 202,347: Determination of 4- (1-Ethylpropyl) amino-2-methyl-3,5-dinitro-benzyl alcohol in Soybean Oil. Method M-603 dated Apr 24, 1975. (Unpublished study received Feb 13, 1980 under 241-243; submitted by American Cyanamid Co., Princeton, N.J.; CDL:241781-M)

00025831 American Cyanamid Company (1974) CL 92,553: Determination of N-(1-Ethylpropyl)--3,4-dimethyl-2,6-dinitrobenzenamine in Cottonseed. Method M-476.1 dated Jun 6, 1974. (Unpublished study received Feb 13, 1980 under 241-243; CDL:241781-R)

00025832 Boughton, P.J. (1974) CL 92,553: Determination of N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine in Cottonseed Oil. Method M-514 dated May 24, 1974. (Unpublished study received Feb 13, 1980 under 241-243; submitted by American Cyanamid Co., Princeton, N.J.; CDL:241781-S)

00025833 Boughton, P.J. (1974) CL 92,553: Determination of N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine in Cotton Plants. Method M-516 dated June 5, 1974. (Unpublished study received Feb 13, 1980 under 241-243; submitted by American Cyanamid Co., Princeton, N.J.; CDL:241781-T)

00025837 Boughton, P.J. (1974) CL 202,347: Determination of 4-(1-Ethylpropyl)amino-2-methyl-3,5-dinitro-benzyl alcohol in Cottonseed. Method M-523 dated May 24, 1974. (Unpublished study received Feb 13, 1980 under 241-243; submitted by American Cyanamid Co., Princeton, N.J.; CDL:241781-X)

00026657 Morici, I.J.; Alford, B.T.; Babcock, C.N.; et al. (1972) Toxicity Data for Technical Prowl on Animals: Report A-72-4. (Unpublished study received on unknown date under 4G1451; submitted by American Cyanamid Co., Princeton, N.J.; CDL:093868-F)

00026663 Feinman, H. (1973) Report: 21-Day Subacute Dermal Toxicity in Rabbits of AC-92553: Laboratory No. 1613. (Unpublished study received on unknown date under 4G1451; prepared by Food and Drug Research Laboratories, Inc., submitted by American Cyanamid Co., Princeton, N.J.; CDL:093868-L)

00026673 Bailey, D.E.; Morgareidge, K. (1973) Dominant Lethal Study in Rats with AC 92553: Laboratory No. 2006. (Unpublished study received on unknown date under 4G1451; prepared by Food and Drug Research Laboratories, Inc., submitted by American Cyanamid Co., Princeton, N.J.; CDL:093868-V)

00026674 Fink, R. (1973) Final Report: Eight-Day Dietary LC50 Mallard Ducks: Project No. 362-138. (Unpublished study received on unknown date under 4G1451; prepared by Hazleton Laboratories, Inc., submitted by American Cyanamid Co., Princeton, N.J.; CDL:093868-X)

00026675 Fink, R. (1973) Final Report: Eight-Day Dietary LC50 Bobwhite Quail: Project No. 362-137. (Unpublished study received on unknown date under 4G1451; prepared by Hazleton Laboratories, submitted by American Cyanamid Co., Princeton, N.J.; CDL:093868-Y)

00029018 Wyckoff, J. (1973) CL 202-347: Determination of 4-(1-Ethylpropyl)amino-2-methyl-3,5-dinitro benzyl alcohol in Corn Plants. Method M-459 dated Sep 25, 1973. (Unpublished study received on unknown date under 4G1451; submitted by American Cyanamid Co., Princeton, N.J.; CDL:093869-C)

00029020 Wyckoff, J. (1973) CL 202-347: Determination of 4-(1-Ethylpropyl)amino-2-methyl-3,5-dinitro-benzyl alcohol in Corn Grain. Method M-466 dated Oct 16, 1973. (Unpublished study received on unknown date under 4G1451; submitted by American Cyanamid Co., Princeton, N.J.; CDL:093869-E)

00029028 Wyckoff, J.C.; Bodnarchuk, D.; Van Scoik, W.S. (1973) Prowl (CL 92,553): Determinaton of CL 92,553...and CL 202,347...Residues in Field Corn Plants: Report No. C-382. (Unpublished study received on unknown date under 4G1451; submitted by American Cyanamid Co., Princeton, N.J.; CDL:093869-N)

00029029 Wyckoff, J.C.; Moyer, M.; Bodnarchuk, D.; et al. (1973) Prowl (CL 92,553): Determination of CL 92,553...CL 202,347...Atrazine...and Bladex...Residues in Field Corn Tissues (Fodder and Grain): Report No. C-401. (Unpublished study received on unknown date under 4G1451; submitted by American Cyanamid Co., Princeton, N.J.; CDL:093869-O)

00029801 Boughton, P.J.; Moyer, M.; Kust, C.A.; et al. (1974) Prowl (CL 92,553): Determination of CL 92,553 :N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine and CL 202,347 4-(Ethylpropylamino)-2-methyl-3,5-dinitro-benzyl alcohol Residues in Soybean Seeds. Alabama. 1973: Report No. C-542. (Unpublished study including report nos. C-544, C-543, C-548..., received Dec 21, 1974 under 5G1580; submitted by American Cyanamid Co., Princeton, N.J.; CDL:094331-K)

00029803 Marei, A.H.; Eisner, S.K. (1974) Prowl Soybean Metabolism: Residual Radioactivity in Soybean Pods and Plants Grown in Soil Treated with Carbon-14 Labeled CL 92,553: Report No. C-538. (Unpublished study received Dec 21, 1974 under 5G1580; submitted by American Cyanamid Co., Princeton, N.J.; CDL:094331-M)

00030697 Suzuki, H.K.: Whitacre, D.M.: Anderson, R.F.: et al. (1976) Residue Project 75-1-D, Banvel Corn-Harvest Aid. (Unpublished study received Aug 30, 1979 under 876-25: prepared in cooperation with International Research and Development Corp. and ABC Laboratories, submitted by Velsicol Chemical Corp., Chicago, Ill.: CDL:240896-A)

00031212 Manuel, A.: Zulalian, J.: Steller, W. (1980) Residues of Prowl Herbicide and Metabolites in Peanut Hulls: Report No. C-1645.1. Summary of studies 099395-B through 099395-F. (Unpublished study received Apr 29, 1980 under 241-243: submitted by American Cyanamid Co., Princeton, N.J.: CDL:099395-A)

00031214 Smith, J. (1979) Prowl Pendimethalin (CL 92,553): Validation of GC Method M-1029 for the Determination of CL 217,146 and CL 202,347 Residues in Peanut Hulls: Report No. C-1618. Includes method M-1029 dated Oct 11, 1979. (Unpublished study received Apr 29, 1980 under 241-243: submitted by American Cyanamid Co., Princeton, N.J.: CDL:099395-C)

00031215 Smith, J.: Lignowski, E.M.: Dunn, J.C.: et al. (1979) Prowl Pendimethalin (CL 92,553/4E): Residues of CL 92,553, CL 202,347 and CL 217,146 in Peanut Hulls: Report No. C-1620. (Unpublished study received Apr 29, 1980 under 241-243; submitted by American Cyanamid Co., Princeton, N.J.; CDL:099395-D)

00031216 Smith, J.; Lignowski, E.M.; Walls, F.R., Jr.; et al. (1979) Prowl Pendimethalin (CL 92,553/4E): Residues of CL 92,553, CL 202,347 and CL 217,146 in Peanut Hulls: Report No. C-1631. (Unpublished study received Apr 29, 1980 under 241-243; submitted by American Cyanamid Co., Princeton, N.J.: CDL:099395-E)

00031217 Smith, J.: Lignowski, E.M.; Goddard, G.; et al. (1979) Prowl Pendimethalin (CL 92,553/4E): Residues of CL 92,553, CL 202,347 and CL 217,146 in Peanut Hulls: Report No. C-1628. (Unpublished study received Apr 29, 1980 under 241-243: submitted by American Cyanamid Co., Princeton, N.J.: CDL:099395-F)

00031219 Marei, A.H.; Barringer, D.F., Jr.: Eisner, S.K. (1975) CL 92,553: Metabolism XVI: Residual Radioactivity in Peanut Seeds and Foliage Grown in Soil Treated with Carbon-14 Labeled Prowl Herbicide--PD-M Volume 12: Project No. 2-460. (Unpublished study received Apr 29, 1980 under 241-243; submitted by American Cyanamid Co., Princeton, N.J.: CDL:099395-I)

00037927 Bentley, R.E. (1974) Acute Toxicity of Prowl 3E, Prowl 4E, and Avenge 2A-S to Bluegill (Lepomis macrochirus) and Rainbow Trout (Salmo gairdneri). (Unpublished study received Nov 14, 1975 under 6F1703; prepared by Bionomics, EG&G, Inc., submitted by American Cyanamid Co., Princeton, N.J.; CDL: 094732-H)

00037940 EG&G Bionomics (1975?) Chronic Toxicity of CL-92,553 to the Fathead Minnow (Pimephales promelas). (Unpublished study received Sep 8, 1977 under 241-243; submitted by American Cyanamid Co., Princeton, N.J.; CDL:096342-A)

00039519 Boughton, P.J.; Potts, C.R. (1975) Prowl (CL 92,553): The Gas Chromatographic Determination of CL 92,553 N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine and CL 202,347 4-(1-Ethylpropyl amino)-2-methyl-3,5-dinitrobenzyl alcohol from Fortified Lima Bean Tissues (Foliage, Pods and Beans): Report No. C-793. (Unpublished study received Feb 9, 1976 under 6G1739; submitted by American Cyanamid Co., Princeton, N.J.; CDL:095485-D)

00039520 Boughton, P.J. (1975) CL 92,553: Determination of N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dintrobenzenamine in Lima Beans. Method no. M-607 dated Jun 9, 1975. (Unpublished study received Feb 9, 1976 under 6G1739; submitted by American Cyanamid Co., Princeton, N.J.; CDL:095485-E)

00039522 Boughton, P.J. (1975) CL 202,347: Determination of 4-(1-Ethylpropyl)amino-2-methyl-3,5-dinitro benzyl alcohol in Lima Bean Foliage and Pods. Method no. M-610 dated Jun 9, 1975. (Unpublished study received Feb 9, 1976 under 6G1739; submitted by American Cyanamid Co., Princeton, N.J.; CDL:095485-H)

00039526 Boughton, P.J.; Devine, J.M.; Laporata, M. (1975) Prowl (CL 92,553): The Gas Chromatographic Determination of CL 92,553 N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine and CL 202,347 4-(Ethylpropyl amino)-2-methyl-3,5-dinitrobenzyl alcohol from Fortified Potato Tissues (Tubers and Vines): Report No. C-786. Includes method no. M-613 dated Jun 23, 1975. (Unpublished study received Feb 9, 1976 under 6G1739; submitted by American Cyanamid Co., Princeton, N.J.; CDL:095485-L)

00039527 Boughton, P.J. (1975) CL 92,553: Determination of N(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine in Potato Vines. Method no. M-614 dated Jun 23, 1975. (Unpublished study received Feb 9, 1976 under 6G1739; submitted by American Cyanamid Co., Princeton, N.J.; CDL:095485-M)

00039528 Boughton, P. (1975) CL 202,347: Determination of 4-(1-Ethylpropyl) amino-2-methyl-3,5-dinitro benzyl alcohol in Potato Tubers. Method no. M-615 dated Jun 23, 1975. (Unpublished study received Feb 9, 1976 under 6G1739; submitted by American Cyanamid Co., Princeton, N.J.; CDL:095485-N)

00039535 Adams, C.F.; Eisner, S.K. (1975) Prowl Herbicide Lima Bean Metabolism: Residual Radioactivity in Lima Bean Pods and Plants Grown in Soil Treated with Carbon-14 Labeled Prowl: Report No. C-729. (Unpublished study received Feb 9, 1976 under 6G1739; submitted by American Cyanamid Co., Princeton, N.J.; CDL:095485-U)

00039537 Adams, C.F.; Eisner, S.K. (1975) Prowl Herbicide, Potato Metabolism: Residual Radioactivity in Potato Plants Grown in Soil Treated with Carbon-14 Labeled Prowl: Report No. C-728. (Unpublished study received Feb 9, 1976 under 6G1739; submitted by American Cyanamid Co., Princeton, N.J.; CDL:095485-X)

00040304 Rapp, W.R.; Kasner, J.A.; Wilson, N.H.; et al. (1974) A Three Generation Reproduction Study of AC 92,553 in Rats: Project No. 72R-748. (Unpublished study received Sep 27, 1974 under 5F1556; prepared by Bio/dynamics, Inc., submitted by American Cyanamid Co., Princeton, N.J.; CDL:094232-C)

00041897 American Cyanamid Co. (1975) General Summary-- Prowl Herbicide Residues in Soybean Plants, Seeds, Oil, Meal and Soil. Summary of Studies 094648-B to 094648-J and 094648-L through 094648-O. (Unpublished study received Nov. 20, 1975 under 6F1704 CDL:094648-A)

00041898 Boughton, P.J.; Bohn, R.; Tondreau, R.E. (1975) Prowl (CL 92,553): The Gas Chromatographic Determination of CL 92553 N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine and CL 202,347 (4-1-Ethylpropyl amino)-2-methyl-3,5-dinitro-benzyl alcohol from Fortified Soybean Tissues (Foliage, Green Seeds and Dry Seeds) and Processed Commodities (Oil and Meal): Report No. C-539.1. Summary of studies 094648-C through 094648-J and 094648-L through 094648-O. (Unpublished study received Nov 20, 1975 under 6F1704; submitted by American Cyanamid Co., Princeton, N.J.; CDL:094648-B)

00041901 Boughton, P.J. (1975) CL 92,553: Determination of N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine in Soybean Meal. Method M-604 dated Apr 24, 1975. (Unpublished study received Nov 20, 1975 under 6F1704; submitted by American Cyanamid Co., Princeton, N.J.; CDL:094648-F)

00041904 Boughton, P.J. (1974) CL 202,347: Determination of 4-(1-Ethylpropyl)amino-2-methyl-3,5-dinitro benzyl alcohol in Soybean Green Seed. Method M-561 dated Nov 12, 1974. (Unpublished study received Nov 20, 1975 under 6F1704; submitted by American Cyanamid Co., Princeton, N.J.; CDL:094648-I)

00046275 Zulalian, J. (1973) CL 92,553: Metabolism III. Isolation and Identification of Metabolites Present in Urine, Feces, and Selected Tissues of Rats Treated with Carbon-14 CL 92553 N-(1-Ethylpropyl)-2,6-dinitro-3,4-xylidine, Prowl Herbicide: Project No. 2-463. (Unpublished study received Sep 27, 1974 under 5F1556; submitted by American Cyanamid Co., Princeton, N.J.; CDL:094475-B)

00046278 Gatterdam, P.E.; Fasinski, R.; Tondreau, R.E. (1973) CL 92,553: Metabolism II. Uptake and Residues of Radioactivity in Cotton following Incorporation of Carbon-14 CL 92,553 in Soil: Project No. 2-464. (Unpublished study received Sep 27, 1974 under 5F1556; submitted by American Cyanamid Co., Princeton, N.J.; CDL:094475-E)

00046280 Kapoor, I.P.; Eisner, S.K. (1974) CL 92,553: Metabolism VIII. Uptake and Residues of Radioactivity in Cotton Grown in Soil Treated with Carbon-14 Labeled Prowl Herbicide: Project No. 2-464. Final rept. (Unpublished study received Sep 27, 1974 under 5F1556; submitted by American Cyanamid Co., Princeton, N.J.; CDL:094475-G)

00046293 Kapoor, I.P.; Barringer, D.F., Jr.; Haugwitz, M.I.; et al. (1974) Prowl Herbicide: Metabolism X. Isolation, Identification, and Characterization of CL 92, 553 and Its Metabolites in Fish and Its Aquatic Environment: Project No. 2-463. (Unpublished study received Sep 27, 1974 under 5F1556; prepared in cooperation with Bionomics EG&G, Inc., submitted by American Cyanamid Co., Princeton, N.J.; CDL:094674-G)

00046347 King, P.G.; Baker, R. (1980) Recommended Method of Analysis. Method M-855.3 dated Jun 16, 1980. (Unpublished study received Sep 24, 1980 under 241-243; submitted by American Cyanamid Co., Princeton, N.J.; CDL:243330-A)

00051958 Boughton, P.J. (1975) Prowl® (CL 92553: The Gas Chromatographic Determination of CL 92553...and CL 202,347...from Fortified Peanut Tissues (Foliage, Hay, Hulls and Nuts) and Processed Commodities (Oil and Meal): Report No. C-655. (Unpublished study received Feb 9, 1976 under 6G1740; submitted by American Cyanamid Co., Princeton, N.J.; CDL:095393-B)

00051959 Boughton, P.J. (1975) CL 92,553: Determination of N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine in Peanut Oil. Method M-590 dated Apr 2, 1975. (Unpublished study received Feb 9, 1976 under 6G1740; submitted by American Cyanamid Co., Princeton, N.J.; CDL:095393-E)

00051960 Boughton, P. (1975) CL 92,553: Determination of N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine in Peanut Meal. Method M-592 dated Apr 2, 1975. (Unpublished study received Feb 9, 1976 under 6G1740; submitted by American Cyanamid Co., Princeton, N.J.; CDL:095393-F)

00051961 Boughton, P.J. (1975) CL 202,347: Determination of 4-(1-Ethylpropyl)amino-2-methyl-3,5-dinitro benzyl alcohol in Peanut Foliage, Hay and Hulls. Method M-580 dated Feb 18, 1975. (Unpublished study received Feb 9, 1976 under 6G1740; submitted by American Cyanamid Co., Princeton, N.J.; CDL:095393-H)

00051962 Boughton, P.J. (1975) CL 202,347: Determination of 4-(1-Ethylpropyl)amino-2-methyl-3,5-dinitro-benzyl alcohol in Peanut Meal. Method M-593 dated Apr 2, 1975. (Unpublished study received Feb 9, 1976 under 6G1740; submitted by American Cyanamid Co., Princeton, N.J.; CDL:095393-J)

00051963 Boughton, P.J.; Kust, C.A.; Potts, C.R.; et al. (1975) Peanut Residue Studies: Report No. C-675. (Unpublished study including report nos. C-670, C-674, C-672..., received Feb 9, 1976 under 6G1740; prepared in cooperation with North Carolina State Univ., Agricultural Experiment Station, Dept. of Crop Science, Peanut Belt Research Station, submitted by American Cyanamid Co., Princeton, N.J.; CDL:095393-K)

00051965 Marei, A.H.; Barringer, D.F., Jr.; Eisner, S.K. (1975) CL 92553: Metabolism XVI: Residual Radioactivity in Peanut Seeds and Foliage Grown in Soil Treated with Carbon-14 Labeled Prowl Herbicide: Project No. 2-460. (Unpublished study received Feb 9, 1976 under 6G1740; submitted by American Cyanamid Co., Princeton, N.J.; CDL:095393-M)

00052558 Boughton, P.J. (1975) CL 92,553: Determination of N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine in Lima Bean Foliage and Pods. Method no. M-608 dated Jun 9, 1975. (Unpublished study received Feb 9, 1976 under 6G1739; submitted by American Cyanamid Co., Princeton, N.J.; CDL:095485-F)

00058478 Oliver, J.E. (1978) Letter sent to Files dated Mar 22, 1978: Analysis of soybean plant parts. (U.S. Agricultural Research Service, Agricultural Environmental Quality Institute, Pesticide Degradation Laboratory, unpublished study; CDL:233412-I)

00058657 Cueto, C., Jr.; Manus, A.G. (1979) Two-Year Toxicity Study in Dogs: AC 92,553: LBI Project No. 20755. Final rept. (Unpublished study received Feb 26, 1981 under 241-243; prepared by Litton Bionetics, Inc., submitted by American Cyanamid Co., Princeton, N.J.; CDL:244444-A; 244445)

00058835 Devine, J.M. (1975) CL 92,553: Determination of N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine in Fish Tissues (Whole Fish, Viscera, Fillet and Tail, and Gonads). Undated method M-632. (Unpublished study received Jun 1, 1976 under 241-243; submitted by American Cyanamid Co., Princeton, N.J.; CDL:224592-E)

00059738 LeBlanc, G.A. (1976) Acute Toxicity of Prowl to Daphnia magna. (Unpublished study received 1976 under 241-243; prepared by Bionomics, EG&G, submitted by American Cyanamid Co., Princeton, N.J.; CDL:228391-A)

00059739 Fink, R. (1976) Final Report: Acute Oral LD50--Mallard Duck: Project No. 130-110. (Unpublished study received 1976 under 241-243; prepared by Truslow Farms, Inc., submitted by American Cyanamid Co., Princeton, N.J.; CDL:228391-B)

00067283 American Cyanamid Company (1980) Summary of Residue Analysis for Prowl Herbicide in Rice Grain. (Compilation; unpublished study received Aug 25, 1980 under 241-243; CDL:099565-A)

00067288 Haugwitz, M.I.; Eisner, S.K. (1974) Prowl Herbicide: Residual Radioactivity in Lactating Goats Treated with 14C-CL 92553 N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine: PD-M 11:131-231. (Unpublished study received Aug 25, 1980 under 241-243; submitted by American Cyanamid Co., Princeton, N.J.; CDL:099565-F)

00067289 Goldhamer, R.E. (1973) Metabolism of 14C-CL 92553 Administered in Capsules to Lactating Goats: Experiment Reference No. A-987; PD-M 11:233-244. (Unpublished study received Aug 25, 1980 under 241-243; prepared by Biometric Testing, Inc., submitted by American Cyanamid Co., Princeton, N.J.; CDL:099565-G)

00067290 Tondreau, R.E. (1973) Prowl (CL 92,553): Determination of CL 92553 N-(1-Ethylpropyl)-2,6-dinitro-3,4-xylidine Residues in Milk: Report No. C-384. (Unpublished study received Aug 25, 1980 under 241-243; submitted by American Cyanamid Co., Princeton, N.J.; CDL:099565-H)

00067293 Marei, A.H.; Haugwitz, M.I.; Eisner, S.K. (1974) CL 92,553: Metabolism: XII. Residual Radioactivity in Rice Grain and Plants Grown in Soil Treated with Carbon-14 CL 92,553: PD-M 11:376-416. Final rept. (Unpublished study received Aug 25, 1980 under 241-243; submitted by American Cyanamid Co., Princeton, N.J.; CDL:099565-K)

00067519 Gustafson, R.H. (1976) Mutagenicity Tests of Typical Prowl Herbicide and of Minor Component CL 94,269. (Unpublished study received Jun 10, 1977; Jun 15, 1977 under 241-243; submitted by American Cyanamid Co., Princeton, N.J.; CDL:230618-A)

00070962 American Cyanamid Company (1976) Summary of Residue Analysis of Prowl in Peas. Includes methods M-597.1 dated Dec 6, 1976; M-693 dated Jul 20, 1976; M-742 dated Dec 6, 1976 and M-694 dated Jul 20, 1976. (Compilation; unpublished study received Feb 8, 1977 under 241-243; CDL:095797-A)

00071120 American Cyanamid Company (1980) Residues of Prowl Herbicide. (Compilation; unpublished study received Jan 22, 1981 under 241-243; CDL:099888-C)

00071121 Mangels, G.; Lucas, L. (1980) Prowl® Pendimethalin (CL 92553): Residual Radioactivity in Rice Grain and Plants Treated Post-emergence with Carbon-14 CL 92553 Prowl: PD-M 17-12:1-22. Final rept. (Unpublished study received Jan 22, 1981 under 241-243; submitted by American Cyanamid Co., Princeton, N.J.; CDL: 099888-D)

00071123 Thompson, C.M.; Griffen, J.; McAllister, W.A. (1980) Acute Toxicity of AC 92,553 to the Freshwater Crayfish (Procambarus simulans): Static Acute Bioassay Final Report #25725. (Unpublished study received Jan 22, 1981 under 241-243; prepared by Analytical Bio Chemistry Laboratories, Inc., submitted by American Cyanamid Co., Princeton, N.J.; CDL:099889-B)

00071124 McAllister, W.A.; Thompson, C.M.; Forbis, A.D.; et al. (1980) Residue Accumulation Study in Crayfish (Procambarus simulans) with 14C-CL 92,553 (Pendimethalin) under Static Conditions: Final Residue Accumulation Report # 25687. (Unpublished study received Jan 22, 1981 under 241-243; prepared by Analytical Bio Chemistry Laboratories, Inc., submitted by American Cyanamid Co., Princeton, N.J.; CDL:099889-C)

00071129 Manuel, A.J. (1980) Recommended Method of Analysis: CL 99,900: GC Method for the Determination of CL 99,900 Residues in Water. Method M-1113 dated Dec 2, 1980. (Unpublished study received Jan 22, 1981 under 241-243; submitted by American Cyanamid Co., Princeton, N.J.; CDL:099889-H)

00072802 American Cyanamid Company (1973) Toxicity Data: Prowl Herbicide, Technical: Report A-73-133. (Unpublished study received Sep 27, 1974 under 5F1556; CDL:094233-H)

00072810 Boughton, P.J. (1975) CL 202,347: Determination of 4-(1-Ethylpropyl)amino-2-methyl-3,5-dinitro-benzyl alcohol in Soybean Meal. Method M-605 dated Apr 24, 1975. (Unpublished study received Nov 20, 1975 under 6F1704; submitted by American Cyanamid Co., Princeton, N.J.; CDL:094648-L)

00072822 Boughton, P.J. (1975) CL 92553: Determination of N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine in Peanuts. Method M-577 dated Feb 18, 1975. (Unpublished study received Feb 9, 1976 under 6G1740; submitted by American Cyanamid Co., Princeton, N.J.; CDL:095393-C)

00072823 Boughton, P.J. (1975) CL 92553: Determination of N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine in Peanut Foliage, Hay and Hulls. Method M-578 dated Feb 18, 1975. (Unpublished study received Feb 9, 1976 under 6G1740; submitted by American Cyanamid Co., Princeton, N.J.; CDL:095393-D)

00072824 Boughton, P.J. (1975) CL 202,347: Determination of 4-(1-Ethylpropyl)amino-2-methyl-3,5-dinitro-benzyl alcohol in Peanuts. Method M-579 dated Feb 18, 1975. (Unpublished study received Feb 9, 1976 under 6G1740; submitted by American Cyanamid Co., Princeton, N.J.; CDL:095393-G)

00072825 Boughton, P. (1975) CL 202,347: Determination of 4-(1-Ethylpropyl)amino-2-methyl-3,5-dinitro-benzyl alcohol in Peanut Oil. Method M-591 dated Apr 2, 1975. (Unpublished study received Feb 9, 1976 under 6G1740; submitted by American Cyanamid Co., Princeton, N.J.; CDL:095393-I)

00073342 Deprospo, J.R. (1973) Acute Inhalation Study of AC 92553 in Rats: Contract No. 122-1968-43. Final rept. (Unpublished study received Dec 21, 1973 under unknown admin. no.; prepared by Affiliated Medical Research, Inc., submitted by American Cyanamid Co., Princeton, N.J.; CDL:130681-H)

00074621 Barringer, D.F., Jr.; Eisner, S. (1973) CL 92553: Metabolism IV. Uptake and Residues of Radioactivity in Sweet Corn Grown in Soil Treated with Carbon-14 Labeled Prowl Herbicide: PD-M 10:584-629. Final rept. (Unpublished study, including submitter summary, received May 8, 1981 under 241-EX-98; submitted by American Cyanamid Co., Princeton, N.J.; CDL:070070-D)

00093697 American Cyanamid Company (1981) Residues of Prowl. Includes undated method M-458.1; method M-465.1 dated May 9, 1974; method M-459.1 dated May 9, 1974; and others. (Compilation; unpublished study, including published data, received Jan 7, 1982 under 241-243; CDL:246583-A)

00093698 Mangels, G.; Lucas, L. (1981) Prowl Pendimethalin (CL 92553): Residual Radioactivety in Corn Treated Postemergence Incorporated with Carbon-14 CL 92553 Prowl Herbicide: PD-M 18-6: 1-21. Final rept. (Unpublished study received Jan 7, 1982 under 241-243; submitted by American Cyanamid Co., Princeton, N.J.; CDL:246583-B)

00099890 Atkins, E.; Greywood-Hale, E.; Macdonald, R.; et al. (1974) Effect of Pesticides on Apiculture: Project No. 1499. 1974 annual rept. (Unpublished study received Jul 31, 1978 under 148-1259; prepared by Univ. of California--Riverside, Citrus Research Center and Agricultural Experiment Station, Dept. of Entomology, submitted by Thompson-Hayward Chemical Co., Kansas City, KS; CDL:234511-S)

00100504 Graney, R.L. (1981) The Chronic (21 Day) Toxicity of AC 92,553 to Daphnia magna Straus: Project No. 5179. (Unpublished study received Apr 20, 1982 under 241-243; prepared by Biospherics, Inc., submitted by American Cyanamid Co., Princeton, N.J.; CDL: 247299-A)

00106751 American Cyanamid Co. (1974) The Name, Chemical Identity and Composition of Prowl Herbicide. (Compilation; unpublished study received on unknown date under 5G1567; CDL:094283-A)

00106752 American Cyanamid Co. (1974) Extent of Prowl Herbicide and Its Metabolite Residues--Cotton Plants, Seed, Oil, Meal and in Milk, Including a Description of the Analytical Methods used. (Compilation; unpublished study received on unknown date under 5G1567; CDL:094284-A)

00106764 Sleight, B. (1973) Acute Toxicity of AC-92553 to Bluegill (Lepomis macrochirus), Rainbow Trout (Salmo gairdneri) and Channel Catfish (Ictaluras punctatus). (Unpublished study received on unknown date under 5G1567; prepared by Bionomics, Inc., submitted by American Cyanamid Co., Princeton, NJ; CDL:094287-E)

00106777 American Cyanamid Co. (1974) Introduction to Environmental Chemistry Studies with Prowl (AC 92,553). (Compilation; unpublished study received on unknown date under 5G1567; CDL:094279-A; 094280; 094281; 094282)

00106779 American Cyanamid Co. (1974) Analyses for Residues of Prowl in Sweet Corn and Other Crops. (Compilation; unpublished study received Sep 27, 1974 under 5F1556; CDL:094470-A)

00106785 American Cyanamid Co. (1975) Extent of Prowl Herbicide and Its Metabolite Residues in Peanut Foliage, Hulls, Nuts, Oil and Meal, Including a Description of the Analytical Methods Used. (Compilation; unpublished study received Feb 9, 1976 under 6F1741; CDL:094960-A)

00106791 American Cyanamid Co. (1976) Residues of Prowl Herbicide in Sorghum. (Compilation; unpublished study received Jan 6, 1978 under 241-EX-88; CDL:096712-A)

00106795 Zulalian, J.; Adams, C.; Eisner, S.; et al. (1978) CL 92553: Residual Radioactivity in Potato Tubers Grown under Greenhouse and Field Conditions in Soil Treated with Carbon-14 and a Mixture of Carbon-13 and Carbon-14 Labeled Prowl Herbicide: PD-M 15-17:1-26. (Unpublished study received Oct 5, 1978 under 241-243; submitted by American Cyanamid Co., Princeton, NJ; CDL: 097432-C)

00106797 American Cyanamid Co. (1978) Amounts of Residues of Prowl, Its Metabolite (CL 202,347) Metribuzin (Sencor or Lexone) and Eptam in or on Potatoes. (Compilation; unpublished study received Oct 5, 1978 under 241-243; CDL:097433-A; 097434)

00106807 American Cyanamid Co. (1979) Residue Analysis of Prowl or Atrazine in Grain Sorghum. (Compilation; unpublished study received Aug 14, 1979 under 241-243; CDL:098918-A)

00106808 American Cyanamid Co. (1979) Residues of Prowl Herbicide. (Compilation; unpublished study received Sep 21, 1979 under 241-EX-95; CDL:098994-A)

00106820 American Cyanamid Co. (1978) Amounts of Residues of Prowl, Its Metabolite (CL 202,347) Atrazine, and Bladex in or on Field Corn. (Compilation; unpublished study received May 11, 1978 under 241-243; CDL:233898-A)

00106829 American Cyanamid Co. (1978) Residues of Prowl Herbicide. (Compilation; unpublished study received Aug 14, 1979 under 241-243; CDL:238944-B; 241020)

00106830 American Cyanamid Co. (1975) Analyses for Residues of Prowl Herbicide in Wheat and Other Crops. (Compilation; unpublished study received Oct 29, 1979 under 241-243; CDL:241256-A)

00108317 Barringer, D.; Eisner, S. (1975) CL 92553: Metabolism XIV. Uptake and Residues of Radioactivity in Winter Wheat Grown in Soil Treated with Carbon-14 Labeled Prowl Herbicide: PD-M 12: 402-433. Progress rept., Nov 5, 1973 to Jan 7, 1975. (Unpublished study received Sep 21, 1979 under 241-EX-95; submitted by American Cyanamid Co., Princeton, NJ; CDL:098994-B)

00109915 Marei, A.; Barringer, D.; Eisner, S. (1975) CL 92,553: Metabolism XVI: Residual Radioactivity in Peanut Seeds and Foliage Grown in Soil Treated with Carbon-14 Labeled Prowl Herbicide: PD-M 12:1365-1387. (Unpublished study received Feb 9, 1976 under 6F1741; submitted by American Cyanamid Co., Princeton, NJ; CDL:094960-B)

00114313 American Cyanamid Co. (1982) Residues of Prowl. (Compilation; unpublished study received Sep 14, 1982 under 241-243; CDL: 248325-A)

00117444 Wolfe, G.; Mistretta, L.; Durloo, R. (1982) Teratology Study in Rabbits: AC 92553 Technical: Project No. 362-164. Final rept. (Unpublished study received Oct 28, 1982 under 241-243; prepared by Hazleton Laboratories America, Inc., submitted by American Cyanamid Co., Princeton, NJ; CDL:248659-A)

00129937 American Cyanamid Co. (1983) Residues of Prowl Herbicide. (Compilation; unpublished study received Jul 27, 1983 under 241-243; CDL:250807-A)

00131772 Ward, G. (1983) Acute Toxicity of AC 92,553 Technical and Formulated to Embryos-larvae of Eastern Oysters ...: Report No. BP-83-6-65; Project No. R95. (Unpublished study received Oct 28, 1983 under 241-1243; prepared by EG & G Bionomics, submitted by American Cyanamid Co., Princeton, NJ; CDL:251601-A)

00131773 LeBlanc, G.; Sousa, J. (1983) Acute Toxicity of AC 92,553 to Channel Catfish ...: Report #BW-83-2-1361. (Unpublished study received Oct 28, 1983 under 241-243; prepared by EG & G Bionomics, submitted by American Cyanamid Co., Princeton, NJ; CDL:251601-C)

00131774 Ward, G.; Shuba, P. (1983) Acute Toxicity of AC 92,553 Technical and Formulation to Sheepshead Minnows ...: Report No. BP-83-3-39; Project No. R95. (Unpublished study received Oct 28, 1983 under 241-243; prepared by EG & G Bionomics, submitted by American Cyanamid Co., Princeton, NJ; CDL:251601-E)

00131775 Ward, G.; Shuba, P. (1983) Acute Toxicity of AC 92,553 Technical and Formulation to Pink Shrimp ...: Report No. BP-83-1-5; Project No. R95. (Unpublished study received Oct 28, 1983 under 241-243; prepared by EG & G Bionomics, submitted by American Cyanamid Co., Princeton, NJ; CDL:251601-G)

00134355 American Cyanamid Co. (1980) Residues of Prowl Herbicide. (Compilation; unpublished study received Jun 11, 1980 under 241-243; CDL:242640-A)

GS0187-001 American Cyanamid Co. (1974) Data Sheet for 90% Technical Pendimethalin. In US EPA Registration Jacket for Product 241-245.

GS0187-002 Zulalian, J.; Lucas, L.; Tondreau, R. (1980) CL 92553: Isolation and Identification of Major Metabolites Found in Peanut Hulls from Peanut Plants Grown under Greenhouse and Field Conditions in Soil Treated with C-14 and a Mixture of C-13 and C-14 Labeled PROWL Herbicide. (Unpublished study labeled Report No. PD-M, Vol. 16-30; received Apr 20, 1980, under 241-243; submitted by American Cyanamid Co., Princeton, N.J.; CDL:099395-H)

OMB Approval No. 2000-0468 Appendix II-3

FIFRA SECTION 3(C)(2)(B) SUMMARY SHEET	EPA REGISTRATION NO.

PRODUCT NAME

APPLICANT'S NAME	DATE GUIDANCE DOCUMENT ISSUED

With respect to the requirement to submit "generic" data imposed by the FIFRA section 3(C)(2)(B) notice contained in the referenced Guidance Document, I am responding in the following manner:

☐ 1. I will submit data in a timely manner to satisfy the following requirements. If the test procedures I will use deviate from (or are not specified in) the Registration Guidelines or the Protocols contained in the Reports of Expert Groups to the Chemicals Group, OECD Chemicals Testing Programme, I enclose the protocols that I will use:

☐ 2. I have entered into an agreement with one or more other registrants under FIFRA section 3(C)(2)(B)(ii) to satisfy the following data requirements. The tests, and any required protocols, will be submitted to EPA by:

NAME OF OTHER REGISTRANT

☐ 3. I enclose a completed "Certification of Attempt to Enter Into an Agreement with Other Registrants for Development of Data" with respect to the following data requirements:

☐ 4. I request that you amend my registration by deleting the following uses (this option is not available to applicants for new products):

☐ 5. I request voluntary cancellation of the registration of this product. (This option is not available to applicants for new products.)

REGISTRANT'S AUTHORIZED REPRESENTATIVE	SIGNATURE	DATE

EPA Form 8580-1 (10-82)

Appendix II-4

OMB Approval No. 2000-0468 (Expires: 12-31-83)

CERTIFICATION OF ATTEMPT TO ENTER INTO AN AGREEMENT WITH OTHER REGISTRANTS FOR DEVELOPMENT OF DATA

(To qualify, certify ALL four items)

1. I am duly authorized to represent the following firm(s) who are subject to the requirements of a Notice under FIFRA Section 3(c)(2)(B) contained in a Guidance Document to submit data concerning the active ingredient:

GUIDANCE DOCUMENT DATE

ACTIVE INGREDIENT

NAME OF FIRM	EPA COMPANY NUMBER

(This firm or group of firms is referred to below as "my firm".)

2. My firm is willing to develop and submit the data as required by that Notice, if necessary. However, my firm would prefer to enter into an agreement with one or more other registrants to develop jointly, or to share in the cost of developing, the following required items or data:

3. My firm has offered in writing to enter into such an agreement. Copies of the offers are attached. That offer was irrevocable and included an offer to be bound by an arbitration decision under FIFRA Section 3(c)(2)(B)(iii) if final agreement on all terms could not be reached otherwise. This offer was made to the following firm(s) on the following date(s):

NAME OF FIRM	DATE OF OFFER

However, none of those firm(s) accepted my offer.

4. My firm requests that EPA not suspend the registration(s) of my firm's product(s), if any of the firms named in paragraph (3) above have agreed to submit the data listed in paragraph (2) above in accordance with the Notice. I understand EPA will promptly inform me whether my firm must submit data to avoid suspension of its registration(s) under FIFRA Section 3(c)(2)(B). (This statement does not apply to applicants for new products.) I give EPA permission to disclose this statement upon request.

TYPED NAME	SIGNATURE	DATE

Appendix III-1

PRODUCT SPECIFIC DATA REPORT

EPA Registration No.________________ Guidance Document for____________________________

Date____________________________

Registration Guideline No.	Name of Test	Test not required for my product listed above (check below)	I am complying with data requirements by		(For EPA Use Only) Accession Numbers Assigned
			Citing MRID#	Submitting Data (Attached)	
§158.20 PRODUCT CHEMISTRY					
61-1	Identity of ingredients				
61-2	Statement of composition				
61-3	Discussion of formation of ingredients				
62-1	Preliminary analysis				
62-2	Certification of limits				
62-3	Analytical methods for enforcement limits				
63-2	Color				
63-3	Physical state				
63-4	Odor				
63-5	Melting point				
63-6	Boiling point				
63-7	Density, bulk-density, or specific gravity				
63-8	Solubility				
63-9	Vapor pressure				
63-10	Dissociation constant				
63-11	Octanol/water partition coefficient				
63-12	pH				

Registration Guideline No.	Name of Test	Test not required for my product listed above (check below)	I am complying with data requirements by		(For EPA Use Only) Accession Numbers Assigned
			Citing MRID#	Submitting Data (Attached)	
63-13	Stability				
63-14	Oxidizing/reducing reaction				
63-15	Flammability				
63-16	Explodability				
63-17	Storage stability				
63-18	Viscosity				
63-19	Miscibility				
63-20	Corrosion characteristics				
63-21	Dielectric breakdown voltage				
§158.135 TOXICOLOGY					
81-1	Acute oral LD-50, rat				
81-2	Acute dermal LD-50				
81-3	Acute inhalation, LC-50 rat				
81-4	Primary eye irritation, rabbit				
81-5	Primary dermal irritation				
81-6	Dermal sensitization				

~~cant obtained the data from another firm (identify); applicant copied data from a publication; applicant obtained a copy of the data from EPA).~~

~~(d) The applicant shall submit with his application a statement that EPA, in its evaluation of the properties, efficacy, and safety of the formulated end-use product, may not consider any data as supporting the application, except the following data:~~

~~(1) The data the applicant has submitted to EPA under paragraph (b) of this section;~~

~~(2) Other data pertaining to the safety of the product's active ingredients, rather than to the safety of the end-use product; and~~

~~(3) Existing tolerances, food additive regulations, exemptions, and other clearances issued under the Federal Food, Drug, and Cosmetic Act.~~

~~(e) If the applicant knows that any item of data he submitted under this section was generated by (or at the expense of) another person who originally submitted the data to EPA (or its predecessor, USDA) on or after January 1, 1970, to support an application for registration, experimental use permit, or amendment adding a new use to an existing registration, or for reregistration (unless the applicant and the original data submitter have reached written agreement on the amount and the terms of payment of any compensation that may be payable under FIFRA section 3(c)(1)(D)(ii) with regard to approval of the application), the applicant shall submit to EPA a statement that he has furnished to each such identified original data submitter:~~

~~(1) A notification of the applicant's intent to apply for registration, including the proposed product name;~~

~~(2) An offer to pay the person compensation, with regard to the approval of the application, to the extent required by FIFRA sections 3(c)(1)(D) and 3(c)(2)(D);~~

~~(3) An identification of the item(s) of data to which the offer applies;~~

~~(4) An offer to commence negotiations to ascertain the amount and terms of compensation to be paid; and~~

~~(5) The applicant's name, address, and telephone number.~~

~~(f) If the applicant's product contains any active ingredient other than those that are present solely because of the incorporation into the product, during formulation, of one or more other registered pesticide products purchased from another producer, then the applicant shall also comply with § 162.9-5 as to such active ingredient, and the application shall contain an acknowledgment that for purposes of FIFRA section 3(c)(1)(D) the application relies on (and any resulting registration should be regarded as if it were based on the Administrator's consideration of) the following data:~~

~~(1) All data submitted or specifically cited by the applicant in support of the registration; and~~

~~(2) Each other item of data in the Agency's files which:~~

~~(i) Concerns the properties or effects of any such active ingredient; and~~

~~(ii) Is one of the types of data that EPA would require to be submitted for scientific review by EPA if the applicant sought the initial registration under FIFRA Section 3(c)(5) of a product with composition and intended uses identical to those proposed for the applicant's product, under the data requirements in effect on the date EPA approves the applicant's present application.~~

~~(Secs. 3, 6, and 25 of FIFRA, as amended, 7 U.S.C. 136 *et seq.*)~~

~~[44 FR 27953, May 11, 1979]~~

§ 162.10 Labeling requirements.

(a) *General*—(1) *Contents of the label.* Every pesticide products shall bear a label containing the information specified by the Act and the regulations in this Part. The contents of a label must show clearly and prominently the following:

(i) The name, brand, or trademark under which the product is sold as prescribed in paragraph (b) of this section;

(ii) The name and address of the producer, registrant, or person for whom produced as prescribed in paragraph (c) of this section;

(iii) The net contents as prescribed in paragraph (d) of this section;

(iv) The product registration number as prescribed in paragraph (e) of this section;

(v) The producing establishment number as prescribed in paragraph (f) of this section;

(vi) An ingredient statement as prescribed in paragraph (g) of this section;

(vii) Warning or precautionary statements as prescribed in paragraph (h) of this section;

(viii) The directions for use as prescribed in paragraph (i) of this section; and

(ix) The use classification(s) as prescribed in paragraph (j) of this section.

(2) *Prominence and legibility.* (i) All words, statements, graphic representations, designs or other information required on the labeling by the Act or the regulations in this part must be clearly legible to a person with normal vision, and must be placed with such conspicuousness (as compared with other words, statements, designs, or graphic matter on the labeling) and expressed in such terms as to render it likely to be read and understood by the ordinary individual under customary conditions of purchase and use.

(ii) All required label text must:

(A) Be set in 6-point or larger type;

(B) Appear on a clear contrasting background; and

(C) Not be obscured or crowded.

(3) *Language to be used.* All required label or labeling text shall appear in the English language. However, the Agency may require or the applicant may propose additional text in other languages as is considered necessary to protect the public. When additional text in another language is necessary, all labeling requirements will be applied equally to both the English and other-language versions of the labeling.

(4) *Placement of Label*—(i) *General.* The label shall appear on or be securely attached to the immediate container of the pesticide product. For purposes of this Section, and the misbranding provisions of the Act, "securely attached" shall mean that a label can reasonably be expected to remain affixed during the foreseeable conditions and period of use. If the immediate container is enclosed within a wrapper or outside container through which the label cannot be clearly read, the label must also be securely attached to such outside wrapper or container, if it is a part of the package as customarily distributed or sold.

(ii) *Tank cars and other bulk containers*—(A) *Transportation.* While a pesticide product is in transit, the appropriate provisions of 49 CFR Parts 170-189, concerning the transportation of hazardous materials, and specifically those provisions concerning the labeling, marking and placarding of hazardous materials and the vehicles carrying them, define the basic Federal requirements. In addition, when any registered pesticide product is transported in a tank car, tank truck or other mobile or portable bulk container, a copy of the accepted label must be attached to the shipping papers, and left with the consignee at the time of delivery.

(B) *Storage.* When pesticide products are stored in bulk containers, whether mobile or stationary, which remain in the custody of the user, a copy of the label of labeling, including all appropriate directions for use, shall be securely attached to the container in the immediate vicinity of the discharge control valve.

(5) *False or misleading statements.* Pursuant to section 2(q)(1)(A) of the Act, a pesticide or a device declared subject to the Act pursuant to § 162.15, is misbranded if its labeling is false or misleading in any particular including both pesticidal and non-pesticidal claims. Examples of statements or representations in the labeling which constitute misbranding include:

(i) A false or misleading statement concerning the composition of the product;

(ii) A false or misleading statement concerning the effectiveness of the product as a pesticide or device;

(iii) A false or misleading statement about the value of the product for purposes other than as a pesticide or device;

(iv) A false or misleading comparison with other pesticides or devices;

(v) Any statement directly or indirectly implying that the pesticide or device is recommended or endorsed by any agency of the Federal Government;

(vi) The name of a pesticide which contains two or more principal active ingredients if the name suggests one or more but not all such principal active ingredients even though the names of the other ingredients are stated elsewhere in the labeling;

(vii) A true statement used in such a way as to give a false or misleading impression to the purchaser;

(viii) Label disclaimers which negate or detract from labeling statements required under the Act and these regulations;

(ix) Claims as to the safety of the pesticide or its ingredients, including statements such as "safe," "nonpoisonous," "noninjurious," "harmless" or "nontoxic to humans and pets" with or without such a qualifying phrase as "when used as directed"; and

(x) Non-numerical and/or comparative statements on the safety of the product, including but not limited to:

(A) "Contains all natural ingredients";

(B) "Among the least toxic chemicals known"

(C) "Pollution approved"

(6) *Final printed labeling.* (i) Except as provided in paragraph (a)(6)(ii) of this section, final printed labeling must be submitted and accepted prior to registration. However, final printed labeling need not be submitted until draft label texts have been provisionally accepted by the Agency.

(ii) Clearly legible reproductions or photo reductions will be accepted for unusual labels such as those silk-screened directly onto glass or metal containers or large bag or drum labels. Such reproductions must be of microfilm reproduction quality.

(b) *Name, brand, or trademark.* (1) The name, brand, or trademark under which the pesticide product is sold shall appear on the front panel of the label.

(2) No name, brand, or trademark may appear on the label which:

(i) Is false or misleading, or

(ii) Has not been approved by the Administrator through registration or supplemental registration as an additional name pursuant to § 162.6(b)(4).

(c) Name and address of producer, registrant, or person for whom produced. An unqualified name and address given on the label shall be considered as the name and address of the producer. If the registrant's name appears on the label and the registrant is not the producer, or if the name of the person for whom the pesticide was produced appears on the label, it must be qualified by appropriate wording such as "Packed for * * *," "Distributed by * * *," or "Sold by * * *" to show that the name is not that of the producer.

(d) *Net weight or measure of contents.* (1) The net weight or measure of content shall be exclusive of wrappers or other materials and shall be the average content unless explicitly stated as a minimum quantity.

(2) If the pesticide is a liquid, the net content statement shall be in terms of liquid measure at 68° F (20°C) and shall be expressed in conventional American units of fluid ounces, pints, quarts, and gallons.

(3) If the pesticide is solid or semisolid, viscous or pressurized, or is a mixture of liquid and solid, the net content statement shall be in terms of weight expressed as avoirdupois pounds and ounces.

(4) In all cases, net content shall be stated in terms of the largest suitable units, i.e., "1 pound 10 ounces" rather than "26 ounces."

(5) In addition to the required units specified, net content may be expressed in metric units.

(6) Variation above minimum content or around an average is permissible only to the extent that it represents deviation unavoidable in good manufacturing practice. Variation below a stated minimum is not permitted. In no case shall the average content of the packages in a shipment fall below the stated average content.

(e) *Product registration number.* The registration number assigned to the pesticide product at the time of registration shall appear on the label, preceded by the phrase "EPA Registration No.," or the phrase "EPA Reg. No." The registration number shall be set in type of a size and style similar to other print on that part of the label on which it appears and shall run parallel to it. The registration number and the required identifying phrase shall not appear in such a manner as to suggest or imply recommendation or endorsement of the product by the Agency.

(f) *Producing establishments registration number.* The producing establishment registration number preceded by the phrase "EPA Est.", of the final establishment at which the product was produced may appear in any suitable location on the label or immediate container. It must appear on the wrapper or outside container of the package if the EPA establishment registration number on the immediate container cannot be clearly read through such wrapper or container.

(g) *Ingredient statement*—(1) *General.* The label of each pesticide product must bear a statement which contains the name and percentage by weight of each active ingredient, the total percentage by weight of all inert ingredients; and if the pesticide contains arsenic in any form, a statement of the percentages of total and water-soluble arsenic calculated as elemental arsenic. The active ingredients must be designated by the term "active ingredients" and the inert ingredients by the term "inert ingredients," or the singular forms of these terms when appropriate. Both terms shall be in the same type size, be aligned to the same margin and be equally prominent. The statement "Inert Ingredients, none" is not required for pesticides which contain 100 percent active ingredients. Unless the ingredient statement is a complete analysis of the pesticide, the term "analysis" shall not be used as a heading for the ingredient statement.

(2) *Position of ingredient statement.* (i) The ingredient statement is normally required on the front panel of the label. If there is an outside container or wrapper through which the ingredient statement cannot be clearly read, the ingredient statement must also appear on such outside container or wrapper. If the size or form of the package makes it impracticable to place the ingredient statement on the front panel of the label, permission may be granted for the ingredient statement to appear elsewhere.

(ii) The text of the ingredient statement must run parallel with other text on the panel on which it appears, and must be clearly distinguishable from and must not be placed in the body of other text.

(3) *Names to be used in ingredient statement.* The name used for each ingredient shall be the accepted common name, if there is one, followed by the chemical name. The common name may be used alone only if it is well known. If no common name has been established, the chemical name alone shall be used. In no case will the use of a trademark or proprietary name be permitted unless such name has been accepted as a common name by the Administrator under the authority of Section 25(c)(6).

(4) *Statements of percentages.* The percentages of ingredients shall be stated in terms of weight-to-weight. The sum of percentages of the active and the inert ingredients shall be 100. Percentages shall not be expressed by a range of values such as "22-25%." If the uses of the pesticide product are expressed as weight of active ingredient per unit area, a statement of the weight of active ingredient per unit volume of the pesticide formulation shall also appear in the ingredient statement.

(5) *Accuracy of stated percentages.* The percentages given shall be as precise as possible reflecting good manufacturing practice. If there may be unavoidable variation between manufacturing batches, the value stated for each active ingredient shall be the lowest percentage which may be present.

(6) *Deterioration.* Pesticides which change in chemical composition significantly must meet the following labeling requirements:

(i) In cases where it is determined that a pesticide formulation changes chemical composition significantly, the product must bear the following statement in a prominent position on the label: "Not for sale or use after [date]."

(ii) The product must meet all label claims up to the expiration time indicated on the label.

(7) *Inert ingredients.* The Administrator may require the name of any

inert ingredient(s) to be listed in the ingredient statement if he determines that such ingredient(s) may pose a hazard to man or the environment.

(h) *Warnings and precautionary statements.* Required warnings and precautionary statements concerning the general areas of toxicological hazard including hazard to children, environmental hazard, and physical or chemical hazard fall into two groups; those required on the front panel of the labeling and those which may appear elsewhere. Specific requirements concerning content, placement, type size, and prominence are given below.

(1) *Required front panel statements.* With the exception of the child hazard warning statement, the text required on the front panel of the label is determined by the Toxicity Category of the pesticide. The category is assigned on the basis of the highest hazard shown by any of the indicators in the table below:

Hazard indicators	Toxicity categories			
	I	II	III	IV
Oral LD_{50}	Up to and including 50 mg/kg.	From 50 thru 500 mg/kg.	From 500 thru 5000 mg/kg.	Greater than 5000 mg/kg.
Inhalation LC_{50}	Up to and including .2 mg/liter.	From .2 thru 2 mg/liter.	From 2. thru 20 mg/liter.	Greater than 20 mg/liter.
Dermal LD_{50}	Up to and including 200 mg/kg.	From 200 thru 2000	From 2,000 thru 20,000.	Greater than 20,000.
Eye effects	Corrosive; corneal opacity not reversible within 7 days.	Corneal opacity reversible within 7 days; irritation persisting for 7 days.	No corneal opacity; irritation reversible, within 7 days.	No irritation.
Skin effects	Corrosive	Severe irritation at 72 hours.	Moderate irritation at 72 hours.	Mild or slight irritation at 72 hours.

(i) *Human hazard signal word*—(A) *Toxicity Category I.* All pesticide products meeting the criteria of Toxicity Category I shall bear on the front panel the signal word "Danger." In addition if the product was assigned to Toxicity Category I on the basis of its oral, inhalation or dermal toxicity (as distinct from skin and eye local effects) the word "Poison" shall appear in red on a background of distinctly contrasting color and the skull and crossbones shall appear in immediate proximity to the word "poison."

(B) *Toxicity Category II.* All pesticide products meeting the criteria of Toxicity Category II shall bear on the front panel the signal word "Warning."

(C) *Toxicity Category III.* All pesticide products meeting the criteria of Toxicity Category III shall bear on the front panel the signal word "Caution."

(D) *Toxicity Category IV.* All pesticide products meeting the criteria of Toxicity Category IV shall bear on the front panel the signal word "Caution."

(E) *Use of signal words.* Use of any signal word(s) associated with a higher Toxicity Category is not permitted except when the Agency determines that such labeling is necessary to prevent unreasonable adverse effects on man or the environment. In no case shall more than one human hazard signal word appear on the front panel of a label.

(ii) *Child hazard warning.* Every pesticide product label shall bear on the front panel the statement "keep out of reach of children." Only in cases where the likelihood of contact with children during distribution, marketing, storage or use is demonstrated by the applicant to be extremely remote, or if the nature of the pesticide is such that it is approved for use on infants or small children, may the Administrator waive this requirement.

(iii) *Statement of practical treatment*—(A) *Toxicity Category I.* A statement of practical treatment (first aid or other) shall appear on the front panel of the label of all pesticides falling into Toxicity Category I on the basis of oral, inhalation or dermal toxicity. The Agency may, however, permit reasonable variations in the placement of the statement of practical treatment is some reference such as "See statement of practical treatment on back panel" appears on the front panel near the word "Poison" and the skull and crossbones.

(B) *Other toxicity categories.* The statement of practical treatment is not required on the front panel except as described in paragraph (h)(1)(iii)(A) of this section. The applicant may, however, include such a front panel statement at his option. Statements of practical treatment are, however, required elsewhere on the label in accord with paragraph (h)(2) of this section if they do not appear on the front panel.

(iv) *Placement and prominence.* All the require front panel warning statements shall be grouped together on the label, and shall appear with sufficient prominence relative to other front panel text and graphic material to make them unlikely to be overlooked under customary conditions of purchase and use. The following table shows the minimum type size requirements for the front panel warning statements on various sizes of labels:

Size of label front panel in square inches	Points	
	Required signal word, all capitals	"Keep out of reach of Children
5 and under	6	6
Above 5 to 10	10	6
Above 10 to 15	12	8
Above 15 to 30	14	10
Over 30	18	12

(2) *Other required warnings and precautionary statements.* The warnings and precautionary statements as required below shall appear together on the label under the general heading "Precautionary Statements" and under appropriate subheadings of "Hazard to Humans and Domestic Animals," "Environmental Hazard" and "Physical or Chemical Hazard."

(i) *Hazard to humans and domestic animals.* (A) Where a hazard exists to humans or domestic animals, precautionary statements are required indicating the particular hazard, the route(s) of exposure and the precautions to be taken to avoid accident, injury or damage. The precautionary paragraph shall be immediately preceded by the appropriate hazard signal word.

(B) The following table depicts typical precautionary statements. These statements must be modified or expanded to reflect specific hazards.

Toxicity category	Precautionary statements by toxicity category	
	Oral, inhalation, or dermal toxicity	Skin and eye local effects
I	Fatal (poisonous) if swallowed [inhaled or absorbed through skin]. Do not breathe vapor [dust or spray mist]. Do not get in eyes, on skin, or on clothing [Front panel statement of practical treatment required.].	Corrosive, causes eye and skin damage [or skin irritation]. Do not get in eyes, on skin, or on clothing. Wear goggles or face shield and rubber gloves when handling. Harmful or fatal if swallowed. [Appropriate first aid statement required.]
II	May be fatal if swallowed [inhaled or absorbed through the skin]. Do not breathe vapors [dust or spray mist]. Do not get in eyes, on skin, or on clothing. [Appropriate first aid statements required.].	Causes eye [and skin] irritation. Do not get in eyes, on skin, or on clothing. Harmful if swallowed. [Appropriate first aid statement required.]
III	Harmful if swallowed [inhaled or absorbed through the skin]. Avoid breathing vapors [dust or spray mist]. Avoid contact with skin [eyes or clothing]. [Appropriate first aid statement required.].	Avoid contact with skin, eyes or clothing. In case of contact immediately flush eyes or skin with plenty of water. Get medical attention if irritation persists.
IV	[No precautionary statements required.]	[No precautionary statements required.]

(ii) *Environmental hazards.* Where a hazard exists to non target organisms excluding humans and domestic animals, precautionary statements are required stating the nature of the hazard and the appropriate precautions to avoid potential accident, injury or damage. Examples of the hazard statements and the circumplacement of the statement of practical treatment is some reference such as "See statement of practical treatment on back panel" appears on the front panel near the word "Poison" and the skull and crossbones.

(B) *Other toxicity categories.* The statement of practical treatment is not required on the front panel except as described in paragraph (h)(1)(iii)(A) of this section. The applicant may, however, include such a front panel statement at his option. Statements of practical treatment are, however, required elsewhere on the label in accord with paragraph (h)(2) of this section if they do not appear on the front panel.

(iv) *Placement and prominence.* All the require front panel warning statements shall be grouped together on the label, and shall appear with sufficient prominence relative to other front panel text and graphic material to make them unlikely to be overlooked under customary conditions of purchase and use. The following table shows the minimum type size requirements for the front panel warning statements on various sizes of labels:

Size of label front panel in square inches	Points	
	Required signal word, all capitals	"Keep out of reach of Children
5 and under	6	6
Above 5 to 10	10	6
Above 10 to 15	12	8
Above 15 to 30	14	10
Over 30	18	12

(2) *Other required warnings and precautionary statements.* The warnings and precautionary statements as required below shall appear together on the label under the general heading "Precautionary Statements" and under appropriate subheadings of "Hazard to Humans and Domestic Animals," "Environmental Hazard" and "Physical or Chemical Hazard."

(i) *Hazard to humans and domestic animals.* (A) Where a hazard exists to humans or domestic animals, precautionary statements are required indicating the particular hazard, the route(s) of exposure and the precautions to be taken to avoid accident, injury or damage. The precautionary paragraph shall be immediately preceded by the appropriate hazard signal word.

(B) The following table depicts typical precautionary statements. These statements must be modified or expanded to reflect specific hazards.

Toxicity category	Precautionary statements by toxicity category	
	Oral, inhalation, or dermal toxicity	Skin and eye local effects
I	Fatal (poisonous) if swallowed [inhaled or absorbed through skin]. Do not breathe vapor [dust or spray mist]. Do not get in eyes, on skin, or on clothing [Front panel statement of practical treatment required.].	Corrosive, causes eye and skin damage [or skin irritation]. Do not get in eyes, on skin, or on clothing. Wear goggles or face shield and rubber gloves when handling. Harmful or fatal if swallowed. [Appropriate first aid statement required.]
II	May be fatal if swallowed [inhaled or absorbed through the skin]. Do not breathe vapors [dust or spray mist]. Do not get in eyes, on skin, or on clothing. [Appropriate first aid statements required.].	Causes eye [and skin] irritation. Do not get in eyes, on skin, or on clothing. Harmful if swallowed. [Appropriate first aid statement required.]
III	Harmful if swallowed [inhaled or absorbed through the skin]. Avoid breathing vapors [dust or spray mist]. Avoid contact with skin [eyes or clothing]. [Appropriate first aid statement required.].	Avoid contact with skin, eyes or clothing. In case of contact immediately flush eyes or skin with plenty of water. Get medical attention if irritation persists.
IV	[No precautionary statements required.]	[No precautionary statements required.]

(ii) *Environmental hazards.* Where a hazard exists to non target organisms excluding humans and domestic animals, precautionary statements are required stating the nature of the hazard and the appropriate precautions to avoid potential accident, injury or damage. Examples of the hazard statements and the circumstances under which they are required follow:

(A) If a pesticide intended for outdoor use contains an active ingredient with a mammalian acute oral LD_{50} of 100 or less, the statement "This Pesticide is Toxic to Wildlife" is required.

(B) If a pesticide intended for outdoor use contains an active ingredient with a fish acute LC_{50} of 1 ppm or less, the statement "This Pesticide is Toxic to Fish" is required.

(C) If a pesticide intended for outdoor use contains an active ingredient with an avian acute oral LD_{50} of 100 mg/kg or less, or a subacute dietary LC_{50} of 500 ppm or less, the statement "This Pesticide is Toxic to Wildlife" is required.

(D) If either accident history or field studies demonstrate that use of the pesticide may result in fatality to birds, fish or mammals, the statement "This pesticide is extremely toxic to wildlife (fish)" is required.

(E) For uses involving foliar application to agricultural crops, forests, or shade trees, or for mosquito abatement treatments, pesticides toxic to pollinating insects must bear appropriate label cautions.

(F) For all outdoor uses other than aquatic applications the label must bear the caution "Keep out of lakes, ponds or streams. Do not contaminate water by cleaning of equipment or disposal of wastes."

(iii) *Physical or chemical hazards.* Warning statements on the flammability or explosive characteristics of the pesticide are required as follows:

Flash point	Required text
(A) PRESSURIZED CONTAINERS	
Flash point at or below 20° F; if there is a flashback at any valve opening.	Extremely flammable. Contents under pressure. Keep away from fire, sparks, and heated surfaces. Do not puncture or incinerate container. Exposure to temperatures above 130° F may cause bursting.
Flash point above 20° F and not over 80° F or if the flame extension is more than 18 in long at a distance of 6 in from the flame.	Flammable. Contents under pressure. Keep away from heat, sparks, and open flame. Do not puncture or incinerate container. Exposure to temperatures above 130° F may cause bursting.
All other pressurized containers	Contents under pressure. Do not use or store near heat or open flame. Do not puncture or incinerate container. Exposure to temperatures above 130° F may cause bursting.
(B) NONPRESSURIZED CONTAINERS	
At or below 20° F	Extremely flammable. Keep away from fire, sparks, and heated surfaces.
Above 20° F and not over 80° F	Flammable. Keep away from heat and open flame.
Above 80° F and not over 150° F	Do not use or store near heat or open flame.

(i) *Directions for Use*—(1) *General requirements*—(i) *Adequacy and clarity of directions.* Directions for use must be stated in terms which can be easily read and understood by the average person likely to use or to supervise the use of the pesticide. When followed, directions must be adequate to protect the public from fraud and from personal injury and to prevent unreasonable adverse effects on the environment.

(ii) *Placement of directions for use.* Directions may appear on any portion of the label provided that they are conspicuous enough to be easily read by the user of the pesticide product. Directions for use may appear on printed or graphic matter which accompanies the pesticide provided that:

(A) If required by the Agency, such printed or graphic matter is securely attached to each package of the pesticide, or placed within the outside wrapper or bag;

(B) The label bears a reference to the directions for use in accompanying leaflets or circulars, such as "See directions in the enclosed circular:" and

(C) The Administrator determines that it is not necessary for such directions to appear on the label.

(iii) *Exceptions to requirement for direction for use*—(A) Detailed directions for use may be omitted from labeling of pesticides which are intended for use only by manufacturers of products other than pesticide products in their regular manufacturing processes, provided that:

(*1*) The label clearly shows that the product is intended for use only in manufacturing processes and specifies the type(s) of products involved.

(*2*) Adequate information such as technical data sheets or bulletins, is available to the trade specifying the type of product involved and its proper use in manufacturing processes;

(*3*) The product will not come into the hands of the general public except after incorporation into finished products; and

(*4*) The Administrator determines that such directions are not necessary to prevent unreasonable adverse effects on man or the environment.

(B) Detailed directions for use may be omitted from the labeling of pesticide products for which sale is limited to physicians, veterinarians, or druggists, provided that:

(*1*) The label clearly states that the product is for use only by physicians or veterinarians;

(*2*) The Administrator determines that such directions are not necessary to prevent unreasonable adverse effects on man or the environment; and

(*3*) The product is also a drug and regulated under the provisions of the Federal Food, Drug and Cosmetic Act.

(C) Detailed directions for use may be omitted from the labeling of pesticide products which are intended for use only by formulators in preparing pesticides for sale to the public, provided that:

(*1*) There is information readily available to the formulators on the composition, toxicity, methods of use, applicable restrictions or limitations, and effectiveness of the product for pesticide purposes;

(*2*) The label clearly states that the product is intended for use only in manufacturing, formulating, mixing, or repacking for use as a pesticide and specifies the type(s) of pesticide products involved;

(*3*) The product as finally manufactured, formulated, mixed, or repackaged is registered; and

(*4*) The Administrator determines that such directions are not necessary to prevent unreasonable adverse effects on man or the environment.

(2) *Contents of Directions for Use.* The directions for use shall include the following, under the headings "Directions for Use":

(i) The statement of use classification as prescribed in 162.10(j) immediately under the heading "Directions for Use."

(ii) Immediately below the statement of use classification, the statement "It is a violation of Federal law to use this product in a manner inconsistent with its labeling."

(iii) The site(s) of application, as for example the crops, animals, areas, or objects to be treated.

(iv) The target pest(s) associated with each site.

(v) The dosage rate associated with each site and pest.

(vi) The method of application, including instructions for dilution, if required, and type(s) of application apparatus or equipment required.

(vii) The frequency and timing of applications necessary to obtain effective results without causing unreasonable adverse effects on the environment.

(viii) Specific limitations on reentry to areas where the pesticide has been applied, meeting the requirements concerning reentry provided by 40 CFR Part 170.

(ix) Specific directions concerning the storage and disposal of the pesticide and its container, meeting the requirements of 40 CFR Part 165. These instructions shall be grouped and appear under the heading "Storage and Disposal." This heading must be set in type of the same minimum sizes as required for the child hazard warning (See Table in § 162.10(h)(1)(iv).)

(x) Any limitations or restrictions on use required to prevent unreasonable adverse effects, such as:

(A) Required intervals between application and harvest of food or feed crops.

(B) Rotational crop restrictions.

(C) Warnings as required against use on certain crops, animals, objects, or in or adjacent to certain areas.

(D) [Reserved]

(E) For restricted use pesticides, a statement that the pesticide may be applied under the direct supervision of a certified applicator who is not physically present at the site of application but nonetheless available to the person applying the pesticide, unless the Agency has determined that the pesticide may only be applied under the direct supervision of a certified applicator who is physically present.

(F) Other pertinent information which the Administrator determines to be necessary for the protection of man and the environment.

(j) *Statement of Use Classification.* By October 22, 1976, all pesticide products must bear on their labels a statement of use classification as described in paragraphs (j)(1) and (2) of this section. Any pesticide product for which some uses are classified for general use and others for restricted use shall be separately labeled according to the labeling standards set forth in this subsection, and shall be marketed as separate products with different registration numbers, one bearing directions only for general use(s) and the other bearing directions for restricted use(s) except that, if a product has both restricted use(s) and general use(s), both of these uses may appear on a product labeled for restricted use. Such products shall be subject to the provisions of § 162.10(j)(2).

(1) *General Use Classification.* Pesticide products bearing directions for use(s) classified general shall be labeled with the exact words "General Classification" immediately below the heading "Directions for Use." And reference to the general classification that suggests or implies that the general utility of the pesticide extends beyond those purposes and uses contained in the Directions for Use will be considered a false or misleading statement under the statutory definitions of misbranding.

(2) *Restricted Use Classification.* Pesticide products bearing direction for use(s) classified restricted shall bear statements of restricted use classification on the front panel as described below:

(i) *Front panel statement of restricted use classification.* (A) At the top of the front panel of the label, set in type of the same minimum sizes as required for human hazard signal words (see table in § 162.10(h)(1)(iv)), and appearing with sufficient prominence relative to other text and graphic material on the front panel to make it unlikely to be overlooked under customary conditions of purchase and use, the statement "Restricted Use Pesticide" shall appear.

(B) Directly below this statement on the front panel, a summary statement of the terms of restriction imposed as a precondition to registration shall appear. If use is restricted to certified applicators, the following statement is required: "For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification." If, however, other regulatory restrictions are imposed, the Administrator will define the appropriate wording for the terms of restriction by regulation.

(k) Advertising. [Reserved]

[40 FR 28268, July 3, 1975; 40 FR 32329, Aug. 1, 1975; 40 FR 36571, Aug. 21, 1975, as amended at 43 FR 5786, Feb. 9, 1978]

~~§ 162.11 Criteria for determinations of unreasonable adverse effects.~~

~~(a) *Criteria for Issuance of Notice of Intent to Deny Registration, Cancel Registration, or to Hold a Hearing*—(1) *Presumption.* (i) A rebuttable presumption shall arise that a notice of intent to deny registration pursuant to section 3(c)(6) of the Act, a notice of intent to cancel registration pursuant to section 6(b)(1) of the Act, or a notice of intent to hold a hearing to determine whether the registration should be cancelled or denied, as appropriate, shall be issued upon a determination by the Administrator that the pesticide meets or exceeds any of the criteria for risk set forth in paragraph (a)(3) of this section. Upon such determination, the Administrator shall issue notice by certified mail to the applicant or registrant, as the case may be, stating that the applicant or registrant has the opportunity to submit evidence in rebuttal of such presumption in accordance with paragraph (a)(4) of this section. The applicant or registrant shall have forty-five~~

LABELING REQUIREMENTS OF THE FIFRA, AS AMENDED

ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
1	Product name	All products	Front panel	Center front panel	
2	Company name and address	All products	None	Bottom front panel or end of label text	If registrant is not the producer, must be qualified by "Packed for . . .," "Distributed by. . .," etc.
3	Net contents	All products	None	Bottom front panel or end of label text	May be in metric units in addition to U.S. units
4	EPA Reg. No.	All products	None	Front panel	Must be in similar type size and run parallel to other type.
5	EPA Est. No.	All products	None	Front panel, immediately before or following Reg. No.	May appear on the container instead of the label.
6A	Ingredients statement	All products	Front panel	Immediately following product name	Text must run parallel with other text on the panel.
6B	Pounds/gallon statement	Liquid products where dosage given as lbs. ai/unit area	Front panel	Directly below the main ingredients statement	
7	Front panel precautionary statements	All products	Front panel		All front panel precautionary statements must be grouped together, preferably blocked.
7A	Keep Out of Reach of Children (Child hazard warning)	All products	Front panel	Above signal word	Note type size requirements.
7B	Signal word	All products	Front panel	Immediately below child hazard warning	Note type size requirements.

ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
7C	Skull & crossbones and word POISON (in red)	All products which are Category I based on oral, dermal, or inhalation toxicity	Front panel	Both in close proximity to signal word	
7D	Statement of practical treatment	All products in Categories I, II, and III	Category I: Front panel unless referral statement is used. Others: Grouped with side panel precautionary statements.	Front panel for all.	
7E	Referral statement	All products where precautionary labeling appears on other than front panel.	Front panel		
8	Side/back panel precautionary statements	All products	None	Top or side of back panel preceding directions for use	Must be grouped under the headings in 8A, 8B, and 8C; preferably blocked.
8A	Hazards to humans and domestic animals	All products in Categories I, II, and III	None	Same as above	Must be preceded by appropriate signal word.
8B	Environmental hazards	All products	None	Same as above	Environmental hazards include bee caution where applicable.

ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
8C	Physical or chemical hazards	All pressurized products, others with flash points under 150°F	None	Same as above	
9A	Restricted block	All restricted products	Top center of front panel	Preferably blocked	Includes a statement of the terms of restriction. The words "RESTRICTED USE PESTICIDE" must be same type size as signal word.
9C	Misuse statement	All products	Immediately following heading of directions for use		
10A	Reentry statement	All cholinesterase inhibitors	In the directions for use	Immediately after misuse statement	
10C	Storage and disposal block	All products	In the directions for use	Immediately before specific directions for use or at the end of directions for use	Must be set apart and clearly distinguishable from from other directions for use.
10D	Directions for use	All products	None	None	May be in metric as well as U.S. units

PHYSICAL-CHEMICAL HAZARDS

Criteria	Required Label Statement
I. Pressurized Containers	
A. Flashpoint at or below 20°F; or if there is a flashback at any valve opening.	Extremely flammable. Contents under pressure. Keep away from fire, sparks, and heated surfaces. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
B. Flashpoint above 20°F and not over 80°F; or if the flame extension is more than 18 inches long at a distance of 6 inches from the valve opening.	Flammable. Contents under pressure. Keep away from heat, sparks, and flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
C. ALL OTHER PRESSURIZED CONTAINERS	Contents under pressure. Do not use or store near heat or open flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
II. Non-Pressurized Containers	
A. Flashpoint at or below 20°F.	Extremely flammable. Keep away from fire, sparks, and heated surfaces.
B. Flashpoint above 20°F and not over 80°F.	Flammable. Keep away from heat and open flame.
C. Flashpoint over 80°F and not over 150°F.	Do not use or store near heat and open flame.
D. Flashpoint above 150°F.	None required.

STORAGE AND DISPOSAL INSTRUCTIONS FOR PESTICIDES

All products are required to bear specific label instructions about storage and disposal. Storage and disposal instructions must be grouped together in the directions for use portion of the label under the heading STORAGE AND DISPOSAL. Products intended solely for domestic use need not include the heading "STORAGE AND DISPOSAL." The STORAGE AND DISPOSAL heading must appear in the minimum type size listed below:

Size of label front panel in square inches	Required type size for the heading STORAGE AND DISPOSAL (all capitals)
10 and under	6 point
Above 10 to 15	8 point
Above 15 to 30	10 point
Over 30	12 point

Storage and disposal instructions must be set apart and clearly distinguishable from other directions for use. Blocking storage and disposal statements with a solid line is suggested as a means of increasing their prominence.

A. Storage Instructions:

All product labels are required to have appropriate storage instructions. Specific storage instructions are not prescribed. Each registrant must develop his own storage instructions, considering, when applicable, the following factors:

1. Conditions of storage that might alter the composition or usefulness of the pesticide. Examples could be temperature extremes, excessive moisture or humidity, heat, sunlight, friction, or contaminating substances or media.

2. Physical requirements of storage which might adversely affect the container of the product and its ability to continue to function properly. Requirements might include positioning of the container in storage, storage or damage due to stacking, penetration of moisture, and ability to withstand shock or friction.

3. Specifications for handling the pesticide container, including movement of container within the storage area, proper opening and closing procedures (particularly for opened containers), and measures to minimize exposure while opening or closing container.

4. Instructions on what to do if the container is damaged in any way, or if the pesticide is leaking or has been spilled, and precautions to minimize exposure if damage occurs.

5. General precautions concerning locked storage, storage in original container only, and separation of pesticides during storage to prevent cross-contamination of other pesticides, fertilizer, food, and feed.

6. General storage instructions for household products should emphasize storage in original container and placement in locked storage areas.

B. Pesticide Disposal Instructions:

The label of all products, except those intended solely for domestic use, must bear explicit instructions about pesticide disposal. The statements listed below contain the exact wording that must appear on the label of these products:

1. The labels of all products, except domestic use, must contain the statement, "Do not contaminate water, food, or feed by storage or disposal."

2. Except those products intended solely for domestic use, the labels of all products that contain active ingredients appearing on the "Acutely Hazardous" Commercial Pesticide Products List (RCRA "E" List) at the end of this appendix or are assigned to Toxicity Category I on the basis of oral or dermal toxicity, skin or eye irritation potential, or Toxicity Category I or II on the basis of acute inhalation toxicity must bear the following pesticide disposal statement:

   "Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance."

   The labels of all products, except those intended for domestic use, containing active or inert ingredients that appear on the "Toxic" Commercial Pesticide Products List (RCRA "F" List) at the end of this appendix or presently meet any of the criteria in Subpart C, 40 CFR 261 for a hazardous waste must bear the following pesticide disposal statement:

"Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance."

Labels for all other products, except those intended for domestic use, must bear the following pesticide disposal statement:

"Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility."

3. Products intended for domestic use only must bear the following disposal statement: "Securely wrap original container in several layers of newspaper and discard in trash."

C. Container Disposal Instructions

The label of each product must bear container disposal instructions appropriate to the type of container.

1. All products intended for domestic use must bear one of the following container disposal statements:

Container Type	Statement
Non-aerosol products (bottles, cans, jars)	Do not reuse container (bottle, can, jar). Rinse thoroughly before discarding in trash.
Non-aerosol products (bags)	Do not reuse bag. Discard bag in trash.
Aerosol products	Replace cap and discard containers in trash. Do not incinerate or puncture.

2. The labels for all other products must bear container disposal instructions, based on container type, listed below:

Container Type	Statement
Metal containers (non-aerosol)	Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.
Plastic containers	Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.
Glass containers	Triple rinse (or equivalent). Then dispose of in a sanitary landfill or by other approved state and local procedures.
Fiber drums with liners	Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then dispose of liner in a sanitary landfill or by incineration if allowed by state and local authorities. If drum is contaminated and cannot be reused[1], dispose of in the same manner.
Paper and plastic bags	Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.
Compressed gas cylinders	Return empty cylinder for reuse (or similar wording)

1/ Manufacturer may replace this phrase with one indicating whether and how fiber drum may be reused.

Pesticides that are hazardous wastes under 40 CFR 261.33(e) and (f) when discarded.

"Acutely Hazardous" Commercial Pesticides (RCRA "E" List) Active Ingredients, (no inerts):

Acrolein
Aldicarb
Aldrin
Allyl alcohol
Aluminum phosphide
4-Aminopyridine
Arsenic acid
Arsenic pentoxide
Arsenic trioxide
Calcium cyanide
Carbon disulfide
p-Chloroaniline
Cyanides (soluble cyanide salts, not specified elsewere)
Cyanogen chloride
2-Cyclohexyl-4,6-dinitrophenol
Dieldrin
0,0-Diethyl S-[2-ethylthio)ethyl] phosphorodithioate
    (disulfoton, Di-Syston)
0,0-Diethyl 0-pyrazinyl phosphorothioate (Zinophos)
Dimethoate
0,0-Dimethyl 0-p-nitrophenyl phosphorothioate (methyl parathion)
4,6-Dinitro-o-cresol and salts
4,6-Dinitro-o-cyclohexylphenol
2,4 Dinitrophenol
Dinoseb
Endosulfan
Endothall
Endrin
Famphur
Fluoroacetamide
Heptachlor
Hexanethyl tetraphosphate
Hydrocyanic acid
Hydrogen cyanide
Methomyl
alpha-Naphthylthiourea (ANTU)
Nicotine and salts
Octamethylpyrophosphoramide (OMPA, schradan)
Parathion

Appendix IV-4
(continued)

"Acutely Hazardous" Commercial Pesticides (RCRA "E" List) Active Ingredients continued:

Phenylmercuric acetate (PMA)
Phorate
Potassium cyanide
Propargyl alcohol
Sodium azide
Sodium cyanide
Sodium fluoroacetate
Strychnine and salts
0,0,0,0-Tetraethyl dithiopyrophosphate (sulfotepp)
Tetraethyl pyrophosphate
Thallium sulfate
Thiofanox
Toxaphene
Warfarin
Zinc phosphide

Appendix IV-4
(continued)

"Toxic" Commercial Pesticide Products (RCRA "F" List) Active Ingredients:

Acetone
Acrylonitrile
Amitrole
Benzene
Bis(2-ethylhexyl)pthalate
Cacodylic acid
Carbon tetrachloride
Chloral (hydrate)
Chlordane (technical)
Chlorobenzene
4-Chloro-m-cresol
Chloroform
o-Chlorophenol
4-Chloro-o-toluidine hydrochloride
Creosote
Cresylic acid
Cyclohexane
Decachlorooctahydro-1,3,4-metheno-2H-cyclobuta[c,d]-pentalen-2-one
    (kepone, chlordecone)
1,2-Dibromo-3-chloropropane (DBCP)
Dibutyl phthalate
S-3,3-(Dichloroallyl diisopropylthiocarbamate (diallate, Avadex)
o-Dichlorobenzene
p-Dichlorobenzene
Dichlorodifluoromethane (Freon 12®)
3,5-Dichloro-N-(1,1-dimethyl-2-propynyl) benzamide (pronamide,Kerb)
Dichloro diphenyl dichloroethane (DDD)
Dichloro diphenyl trichloroethane (DDT)
Dichlorethyl ether
2,4-Dichlorophenoxyacetic, esters and salts (2,4-D)
1,2-Dichloropropane
1,3-Dichloropropane (Telone)
Dimethyl phthalate
Ethyl acetate
Ethyl 4,4'-dichlorobenzilate (chlorobenzilate)
Ethylene dibromide (EDB)
Ethylene dichloride
Ethylene oxide
Formaldehyde
Furfural
Hexachlorobenzene
Hexachlorocyclopentadiene
Hexachloroethane
Hydrofluoric acid

Appendix IV-4
(continued)

"Toxic" Commercial Pesticide Products (RCRA "F" List)
Active Ingredients:

Isobutyl alcohol
Lead acetate
Lindane
Maleic hydrazide
Mercury
Methyl alcohol
Methyl bromide
Methyl chloride
2,2'-Methylenebis (3,4,6-trichlorophenol) (hexachlorophene)
Methylene chloride
Methyl ethyl ketone
4-Methyl-2-pentanone (methyl isobutyl ketone)
Naphthalene
Nitrobenzene
p-Nitrophenol
Pentachloroethane
Pentachloronitrobenzene (PCNB)
Pentaclorophenol
Phenol
Phosphorodithioic acid, 0,0-diethyl, methyl ester
Propylene dichloride
Pyridine
Resorcinol
Safrole
Selenium disulfide
Silvex
1,2,4,5-Tetrachlorobenzene
1,1,2,2-Tetrachloroethane
Tetrachloroethylene
2,3,4,6-Tetrachlorophenol
Thiram
Toluene
1,1,1-Trichloroethane
Trichloroethylene
Trichloromonofluoromethane (Freon 11®)
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)
Xylene

Appendix IV-4
(continued)

"Toxic" Commercial Pesticide Products (RCRA "F" List) Inert Ingredients:

Acetone
Acetonitrile
Acetophenone
Acrylic acid
Aniline
Benzene
Chlorobenzene
Chloroform
Cyclohexane
Cyclohexanone
Dichlorodifluoromethane (Freon 12®)
Diethyl phthalate
Dimethylamine
Dimethyl phthalate
1,4-Dioxane
Ethylene oxide
Formaldehyde
Formic acid
Isobutyl alcohol
Meleic anhydride
Methyl alcohol (methanol)
Methyl ethyl ketone
Methyl methacrylate
Naphthalene
Saccharin and salts
Thiourea
Toluene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichlorofluoromethane (Freon 11®)
Vinyl chloride
Xylene

*U.S. GOVERNMENT PRINTING OFFICE: 1985-461-217/34904